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Business Side of Cracking is Brought Out; Inventor Adams Tells His Story

By Paul Truesdell
N. P. N. Staff Writer

NEW YORK, Nov. 13

THE business side of the development of the cracking art and the events leading up to the formation and recruiting of the Patent Club held the stage during the last six days of the hearing of the suit brought by the government against the Patent Club members and their licensees.

The defense rested its case Nov. 4 in the hearing before Special Master Charles Martindale of Indianapolis. Thereupon the case was adjourned to Dec. 13 when, presumably, the government will introduce testimony in rebuttal of the points made by the defense. With the exception of two or three witnesses, all those who testified during the last days the defense was putting in its case were business men rather than technical men and they included some of the leaders of the industry.

As Robert E. Wilson, of the Standard of Indiana, had put in the technical case for the Patent Club, as reported in earlier stories in N. P. N., the business aspects of the cracking situation were set forth by Walter C. Teagle, president of the Standard Oil Co. of New Jersey; Seth B. Hunt, vice president and treasurer of the New Jersey Company; Colonel Robert W. Stewart, chairman of the board of directors of the Standard Oil Co. of Indiana; R. C. Holmes, president of The Texas Co.; Frederick Osborn, president of the Gasoline Products Corp. which owns the Cross patents and L. H. Harvison, vice president and general manager of the M. W. Kellogg Co.

Oct. 25 and part of the next day were spent in redirect and re-cross examination of Mr. Wilson. The defense, however, did not pass on to the economic aspects of the case until after they had taken another crack at the testimony of the government's expert witness, Prof. R. H. McKee of Columbia university, and given Joseph H. Adams, the inventor, whose patents were assigned to the Texas Co., a chance to tell his story.

Introducing Adams

MR. ADAMS is an exceedingly interesting figure in the oil industry.

Known by word of mouth to every refiner in the country as the key man in the cracking situation, from the patent standpoint, the man whose patents after they were assigned to The Texas Co., became the foundation stones of the Patent Club, Mr. Adams probably is personally known to very few, however.

When he took the stand for direct examination by his lawyer, former governor Nathan Miller of New York, Mr. Adams introduced himself as "not a scientist but an experimentalist." He told an interesting story of years of study and experimental work which began back in 1897, resulting finally in the issuance of patents that in 1920 alone brought him more than half a million dollars in royalties.

The narrative, drawn out by the questions of his attorney, fitted in perfectly with the popular idea of the "poor inventor" burning the midnight oil for years in his garret or cellar workshop, meeting one difficulty after another, trying one thing after another in his efforts to overcome them, calling in his friends and associates to see what he had done, and finally, like the happy ending of a movie, selling his invention to a great company that has made him rich.

For more than 10 years Mr. Adams said, he carried on his experimental work, first in the cellar of his home, then in the basement of a powerhouse of the Brooklyn Rapid Transit Co. in Brooklyn and then in a laboratory of his own. Much of his work was done in the line of vacuum distillation and he testified that in 1908 he filed application for a patent on a vacuum process.

In 1907 or 1908 he started to study pressure distillation and in the following year filed an application for patent on a pressure distillation process. He said that he once had an accident in the basement of the power station, blowing off the vapor dome of his still and this so alarmed the foreman that the inventor was ejected from that workshop.

Vacuum—Pressure Apparatus

HE then built a laboratory of his own nearby where he continued his work. His first installations, he stated, were designed to be heated by electricity. His early equipment was so designed, he said, that he could operate it either under vacuum or pressure. He explained his method by saying that he had a double action brass cylinder pump with a flywheel. A yoke coming from the two cylinders at the base of the pump was connected into a single reinforced hose which ran up to what is known as a fitting at the top of the first collecting or distillate running trap tank toward the condenser. He could change from vacuum to pressure operation, he said, by closing a valve. His equipment was fitted with both pressure and vacuum gages, he testified, and with some double acting gages that would register either pressure or vacuum.

The supply tanks were located on the rafters above the condenser, and when operating under pressure his method of feeding in oil into the system was by putting air pressure on the oil in the supply tank sufficient to overcome the pressure in the apparatus.

He used an air compressor to build up this pressure.

In 1908 he testified, he built a larger unit with larger condenser, running trap tanks and supply tanks. Electricity for heating the electrodes which were designed to distill the oil, was generated by a special generator driven by a vertical Fairbanks gas engine. He soon found, however, he stated, that the generator was not equal to furnishing the required heat and for a time the electrodes were hookd up with the power lines of the B. R. T. He soon gave up the idea of distilling oil by electricity and went to a gas-fired converter.

The next witness called was George Hiers, now a chemist with the National Lead Co. He testified that he was acquainted with Mr. Adams in 1907 and 1908 and was in fact a chum of Mr. Adams' two sons, Alfred and Ray. He stated that on one occasion he visited Mr. Adams' laboratory and saw apparatus in action there. He stated that Professor Hancock, who was the boy's chemistry teacher in a Brooklyn high school, was also there. Mr. Hiers said that he saw light oil come out of the apparatus under pressure. This light oil was drawn off by Mr. Adams and Professor Hancock, the witness testified, and tested by the latter.

Mr. Hiers described the apparatus he saw at that time as a heating chamber consisting of a vertical tube with a device for removing carbon. Mr. Hiers was the signer of one of the affidavits produced by Mr. Adams to prove his invention before the patent examiners. These affidavits have been challenged as fraudulent by the government.

One of the affidavits signed by Mr. Hiers, he said, was that concerning the Seigle patent. He said he would not sign it as at first presented to him by Mr. Adams, nor until he had studied the Seigle patent. On cross examination by Alexander B. Royce, chief counsel for the government, Mr. Hiers stated that he had never seen a gas plant in operation, and had never seen the apparatus described in the Seigle patent at work. He also said he is not familiar with benzol and toluol. His knowledge of patents and processes, he testified, came from the study of books on the subject.

Knowledge Came From Books

MR. ADAMS identified many photographs that were shown him by his counsel as pictures of his apparatus that he had taken himself and he pointed out various parts of the apparatus on the pictures.

Mr. Adams described the carbon scraping device which the defense claims is one of the basic features of the Adams patents and stated that he ran at pressures running from a few ounces up to as high as 200 pounds and on one occasion as high as 210 pounds. He had gages on the apparatus, he said, that would register pressure up to 250 pounds.

Air pressure to feed the oil into the system against this operating pressure, he said, was built up by a suction and force pump. The charging stock he used was refined kerosene, Mr. Adams testified, and he said that he got as a product mixtures of light fractions from 45 to 80 A. P. I. gravity and boiling ranges from 100 to 350 F. One of the places where he carried on experiments for some time was in the bone black house of the Valvoline Oil Works, at Edgewater, N. J., he testified. The witness mentioned the late George M. Saybolt, for many years head of the laboratories of the Standard of New Jersey, as one of the visitors to his experimental plant.

In connection with the affidavit signed by Joe Klaus, Mr. Adams testified that Klaus was a handy man about the plant, took tests and understood generally what was going on. Klaus' affidavit is one of those attacked by the government.

Fiske Adams, brother of the inventor was a witness, followed by Alfred Dunbar Adams the inventor's son who is now employed in the advertising department of the Standard Oil Co. of New York, Albert J. Hiers, a brother of George, the lawyer who took the Klaus affidavit and Ray Adams, the inventor's other son.

Sold Adams Pressure Tanks

GEORGE NEWELL, factory superintendent of J. D. Johnson & Co. testified that Adams ordered from him special cylindrical tanks along in 1905 and later, always specifying that they must be exceedingly strong and tight because they were to withstand high pressure. Irving W. Fay, a chemistry teacher at the Polytechnic Institute who signed an affidavit for Mr. Adams, and Agnes Capstick Hoxie, who as a notary's clerk had witnessed the signatures on some of the affidavits, were called as witnesses.

John Forrest Anderson, a physicist, formerly employed by the Brooklyn Rapid Transit Co. testified that he and his associates, when working around the power house where Mr. Adams was experimenting, took some of his product from time to time to use in their gasoline stove for heating up their coffee at lunch time. Mr. Anderson said this product burned better in the stove than the gasoline which was furnished them by the company for the purpose.

On Oct. 28, Mr. Adams was cross examined by Benjamin T. Rauber of government counsel. After trying to show that Mr. Adams was mistaken in his dates, with the evident object of showing that Dubbs and Lang antedated him on the use of pressure, Mr. Rauber began to question him about his income tax returns.

Testimony developed that Mr. Adams got $553,000 in royalties in 1920; $168,000 in 1921; $297,000 in 1922 and $255,000 in 1923. Mr. Royce took up the cross examination on the tax matter. He produced Mr. Adams' income tax return for 1920 which showed a net of $4,553.46 after deductions, being based on the $12,000 a year salary he received from The Texas Co. The 1923 return showed a net of $21,388.84. In neither return was any income reported under the heading "rents and royalties."

Attorney Miller immediately brought out on redirect examination that Mr. Adams had been advised by counsel not to report these payments, as patents were capital assets and the periodic payments by The Texas Co., were purchase price and therefore not income.

After Mr. Adams was excused, Drury Cooper, attorney for the Standard of New Jersey, recalled Mr. Wilson to testify briefly concerning the Hall and de Florez cracking patents. In the course of the questioning, Mr. Wilson stated that William A. Hall was the first man so far as he knew to set forth the theory of making an anti-knock fuel and claim greater mileage for it. This was in 1917.

"Hall was considerably ahead of his time," stated the witness.

Holmes Tells Story

OCT. 29 was taken up with the examination of R. C. Holmes by C. B. Ames, general counsel of The Texas Co. Mr. Holmes testified that the first battery of Holmes-Manley units was installed at the Port Arthur refinery in February, 1920. The first appropriation for this purpose was made in 1918 and consisted of $570,000. The second appropriation was made in August, 1919, of $2,493,000. The building of this commercial battery, said the witness, followed seven or eight years of experimental work during which the company had spent more than half a million dollars.

Up to Jan. 1, 1926, Mr. Holmes said, The Texas Co. has spent $14,000,000 on cracking plants, exclusive of steam plant, power plant, water supply and general tankage in connection with cracking. He said that The Texas Co. found in 1919, through the advice of R. J. Dearborn, patent counsel, that the

Coming Meetings

Rocky Mountain Oil & Gas Association, Montana Chapter, Great Falls, Mont., Dec. 1, 2, 3.

American Petroleum Institute, annual meeting, Mayo Hotel, Tulsa, Dec. 7, 8, 9.

Nebraska Independent Oil Men's Association, Hotel Fontennelle, Omaha, Dec. 16, 17.

Michigan Independent Oil Men's Association, Detroit, Feb. 10 and 11, 1927.

Ohio Petroleum Marketers Association, Neil House, Columbus, O., Feb. 17, 18, 1927.

American Oil Burner Association, Broadway Auditorium, Buffalo, N. Y., Apr. 5, 6, 7.

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Burton process infringed the Adams' and some of the other Texas Co. patents and likewise that some of the features of the Holmes-Manley process probably infringed some of Burton's claims. They sought a settlement with the Standard of Indiana and after about a year of negotiation, a contract was signed between them, guaranteeing each other immunity from infringement suits on either the Burton or the Texas Co. patents.

The Texas Co., the witness said, signed an immunity agreement with the Cross interests in the summer of 1922, the Cross interests thereby being admitted to the Patent Club.

Following Mr. Holmes, Frederick Osborn, president of the Gasoline Products Co. took the stand for questioning by Attorney John B. Marsh, counsel for the Gasoline Products Co. and the M. W. Kellogg Co. After describing some of the hard sledding that the company had gone through in seeking to sell and install the Cross cracking process, Mr. Osborn told of making a contract in February, 1924, with the Kellogg company by which the latter should sell and build Cross cracking units. He stated that the Kellogg officials told him that they would not be placed in the position in which they would not be able also to sell and build Fleming cracking units, the company then being the sales and manufacturing agents for the Richard Fleming Co.

Agrees to Condition

MR. OSBORN agreed to this but, in order that it would not be to the financial advantage of Kellogg to sell Fleming units in preference to Cross, he stipulated that the Kellogg Co. should pay to the Gasoline Products Co. the same proportion of the royalties it received from the Fleming process as the Gasoline Products Co. received from the Cross process and this was agreed to.

"In my opinion," said Mr. Osborn, "at the time we made the contract with Kellogg the Fleming process was already obsolete but it took me a year to persuade Kellogg that it was." Mr. Osborn stated that the license of the American Refining Co., Wichita Falls, to use the Cross process has been revoked for non-payment of royalties. The Gasoline Products Co. has sued the American and the case has been heard but the decision has not yet been handed down.

Nov. 1 was mostly devoted to examination of L. H. Harvison, vice president of the Kellogg Co. by Attorney Marsh. In connection with the Fleming Co., Mr. Harvison stated that he is a director and holder of 225 shares and since Feb., 1924, has been president of that company. Asked to give the names of the licensees of the Fleming process, the dates of installation and the number of units, he gave the following list.

Company	No. Units	Date Installed
Shell Co. of Cal.	1	May, 1920
Sterling O & R.	6	May, 1922
Portland O & R.	1	Sept. 1922
Marland Ref. Co.	18	Nov. 1922
Indian Refining Co.		
Star Rfg. & Prod. Co.	1	Dec. 1922
Grayburg Oil Co.	2	Dec. 1922
Southern Ref. Co.	1	Feb. 1923
Vacuum Oil Co.	5	April, 1923
Pennzoil Co.	4	July, 1923
Houston Terminal Ref. Co.		
Lubrite Refining	4	Aug. 1923
Louisa Co.	2	Aug. 1923
American Oil Works	1	Aug. 1923
Barnsdall	8	Oct. 1923
Titusville Oil Works	1	Nov. 1923

Seven Still Operating

OF these plants, Mr. Harvison testified, the Marland Refining Co., Grayburg Oil Co., Pennzoil Co., Lubrite Refining Co., Louisa Co., American Oil Works, and Titusville Oil Works are still operating.

Asked whether the Kellogg company had ever induced or tried to induce Fleming licensees to cease operating the process, Mr. Harvison stated that it had not. Asked for the reasons why the Fleming plants not now operating have ceased, Mr. Harvison stated that the reasons so far as he knew were as follows:

The Shell Co. of Calif. had an accident which put its Fleming unit out of commission and it never was rebuilt. Vacuum Oil Co. said the process was too dangerous; Indian Refining Co. said it was too dangerous. Portland gave no reason but damaged plant by accident and never rebuilt it; The Star Refining & Producing Co. had a fire which ruined the plant and never rebuilt it; The Southern Refining Co. had a fire and never rebuilt; the Houston Terminal Refining Co. had a fire and never rebuilt; Barnsdall, ruined by fire and explosion and town authorities refused to allow the Fleming units to be operated if they were rebuilt.

Mr. Harvison went on to say that it became impossible to sell the Fleming process. Asked why, Mr. Harvison replied:

"The development of the tube style of cracking plant, such as the Cross, Dubbs and Holmes-Manley. Those processes were more economical than the Fleming both to build and maintain." He then gave comparative costs of the Cross and Fleming process taken from operations at the plant of the Barnsdall Refining Co. which had both, as follows:

The master took a hand in the questioning inquiring:

No units	Fleming	Cross
Average gas oil per month	29,495 bbls.	23,560 bbls.
Average gasoline per month	13,409 bbls.	13,652 bbls.
Per cent gasoline from gas oil	45.4	58.2
Operating cost per bbl. gas oil	62.3 cents	28.4 cents
Cost of units	$350,000	$230,000
Cost of gasoline per bbl. per month	$23	$18

"The number of fires and explosions that you refer to in these Fleming units would indicate that there was either some inherent vice in the engineering, the proportion of parts and strength of parts and so forth or in the operation itself. Do you know which it was?"

Mr. Harvison replied:

"It was fundamentally in the type of plant. A plant of the Fleming type in which the oil was contained in a large still and that still exposed to the direct heat of the furnace could not be built with the same factor of safety as a plant in which the oil is heated in tubes.

"He said the Kellogg company took on the Cross process because it considered it better than the Fleming. He stated that the Kellogg company right now would be willing and glad to give an operating license and to build a Fleming plant for any refiner who wanted to buy one.

Walter C. Teagle followed Mr. Harvison on the stand. His questioning was conducted by John W. Davis and his testimony went mostly to the size and scope of his company's operations. He said that the company, through its subsidiaries, had a daily crude oil production in the United States of about 69,000 barrels, the company's production in 1925 being 3.142 per cent of the country's total, and that the company has 80,000 barrels a day of foreign production.

Frank A. Howard, head of the development department of the Standard of New Jersey and president of the Standard Development Co., recited the history of the acquisition of the Ellis cracking patents and the development of the Tube and Tank cracking process, as well as the fighting and winning of the suit against The Texas Co. for a 40 per cent interest in the Adams patents, having picked up the claim of George Rogers as has been told before in National Petroleum News.

Colonel Stewart Testifies

COLONEL STEWART was the last witness. He testified to the scope of his company's operations and explained the reason why the clauses limiting the marketing of cracked products and giving the Standard of Indiana the option to buy one-third of the output of cracking stills was incorporated in the earlier contracts by which other companies were licensed to use the Burton process.

Colonel Stewart said he was advised by the counsel at the time that the Standard of Indiana could not be forced to license the process to any one and could place any restrictions desired upon the licensing of the process if it did license it, even to "refusing to license it to a refiner because he had red hair."

There was much doubt among the directors, he said, as to the wisdom of allowing any other company to use the Burton process. It was new and little was known as to what might be expected from it in the way of increased gasoline production. Some of the directors feared that if other companies were permitted to crack, the Standard of Indiana's marketing territory would be flooded with gasoline and the price broken to unprofitable levels. It was finally decided to try out licensing on the basis of two years, the licenses to be revocable at the end of that time.

Industry Facing Overproduction During Next Few Months

(By Telegraph)

TULSA, Nov. 16

WITH the opening of another week since the posting of new price schedules by the Carter Oil Co. and other large purchasers a chief topic of speculation in the Mid-Continent is "What is the Prairie going to do?"

Although the situation reflects two widely varying views of the present condition, with the Standard of New Jersey interests predominant in the apparent belief that the way to retard the mounting production is to lessen the price, and with the Prairie and Sinclair companies showing by their actions their belief that maintenance insofar as possible of an adequate crude market is the desirable thing, there is general agreement that the brakes should be applied to production at this time.

This view point was expressed today to National Petroleum News by William N. Davis, president of The Mid-Continent Oil & Gas Association, who summarized the situation as follows:

"No one can forecast with certainty what production could be developed if drilling should continue unabated in the Seminole, Searight, and Earlsboro pools of Oklahoma and the Panhandle district of Texas. In my opinion, if the operators earnestly endeavor to restrain development, production can be kept at a point which will not be unduly burdensome and, barring the discovery of some new major pools, the early spring will find the industry in need of all the oil then being produced.

"Obviously the industry is threatened with the development of an overproduction of crude the next few months. This over-production might be great, it may be small, but there will almost certainly be a considerable amount of oil put in storage in the country as a whole between now and next March or April. In the face of this situation it should be unnecessary to say that no unnecessary wells should be drilled. Every effort should be used to retard development and to curtail production.

"The action of the operators in the Seminole pool in curtailing development through agreement to delay the completion of any wells not absolutely necessary for protection and to prorate runs from their several properties can not be too highly commended. Such a program of restricting development should be put into operation in every pool which threatens an increasing production. This procedure is in keeping with the findings and report of the Federal Oil Conservation Board and is constructive in every way. It is time that the oil industry learned to stabilize its economic conditions for the benefit not only of itself but, as shown by the report referred to, for the benefit of the entire country."

If it were not for Panhandle crude shipments to refineries at this time, the market in the Mid-Continent would probably have a firm tone. During the week ended Nov. 11, the Santa Fe railway moved from the Amarillo district a daily average of about 99,000 barrels of crude oil, an increase of about 12,000 barrels over the previous week.

As one operating executive of the Mid-Continent views it at this time, one of two things must happen if the trend of shipments out of the Panhandle continues. The Mid-Continent price will come down, or the Panhandle price will go up. There is some evidence now of a firming of Panhandle price. During the past week one sale at $1.30 field price was made, which is five cents higher than the posted market. The congestion which existed is being cleared up rapidly due to betterment of railroad movement. With the amount of steel storage now building it appears certain that the excess of production over shipments out of the district will be cared for.

As of Nov. 1, there were 5,900,000 barrels of steel storage under construction and 1,600,000 barrels available room. Oil in storage on that date amounted to 7,200,000 barrels.

Not Guilty to Conspiracy, Doheny Pleads

WASHINGTON, Nov. 15.—Albert B. Fall, former secretary of the interior, and E. L. Doheny, extensive oil operator, have pleaded not guilty under the indictment alleging conspiracy to defraud the government in the making of leases for the exploitation of the Elk Hills naval reserve. Justice Hoehling, of the Supreme Court of the District of Columbia, before whom they were arraigned Nov. 10, set their trial to begin Nov. 22.

Interest in the formality was great. A crowd three times as large as the small court room could accommodate clamored for admittance. It was the first time a former member of the President's cabinet had been before a court in the district, accused of a crime committed in connection with his official duties.

The Albert B. Fall who pleaded not guilty was a weary old man, the muscles of his neck so shrunken his collar was many sizes too large for him. Doheny answered in a tone with considerable ring to it. Not so Fall. His raiment spoke volumes. Never a striking dresser, Fall, however, heretofore has always seemed well groomed. Fall and Doheny left the court room immediately after pleading, the judge directing the continuance of their individual bonds of $5000 each. They rode away in the Doheny automobile to the hotel where Fall lived while a cabinet officer.

Attorneys for Fall and Doheny appeared to be well pleased that the trial of their clients is to take place ahead of that of Harry F. Sinclair. The money alleged to have been traced to Fall in the Sinclair or Teapot Dome case came through the Continental Trading Co. transaction. No explanation of that transaction that satisfies the government has ever been made. The implication is that Doheny's lawyers desire to avoid, in so far as their client is concerned, any influence that may flow from testimony in the Sinclair case. There is no connection between the indictments to which Fall and Doheny pleaded and the Sinclair case. The Sinclair case is still in the status of an action by the government looking to the punishment of Sinclair for failure to answer the questions put to him by the senate investigating committee.

Chicago Jobbers Meeting Is Under Way

(By Telegraph)

CHICAGO, Nov. 16.—Eleventh hour developments for the convention of the American Oil Men's Association starting at Congress Hotel today include an official gathering of the State Executives Club, an organization composed of the presidents and secretaries of the state oil jobbers' associations. W. H. Trimble of Western Oil Refining Co., Indianapolis, called the meeting.

Mr. Trimble is the ranking executive of the club since the resignation of James A. Gilmore. Gilmore was president of the club when he was secretary of the Michigan jobbers and Trimble was first vice president, but Gilmore relinquished his office when he became identified with a national association. Paul Hadlick, secretary of the Minnesota jobbers, is secretary of the club. Some of the state officials are already in Chicago.

Late Crude Price Change

DALLAS, Nov. 16.—On Nov. 16 Magnolia Petroleum Co. met the prices posted by the Humble Oil & Refining Co. and The Texas Co. on Nov. 10 on Spindletop crude, excepting that Magnolia is maintaining the old gravity schedule which goes only up to 31.9 degrees of gravity. Magnolia's new price on its maximum grade of 31 to 31.9 is $1.75, while the Humble's maximum grade is 35 and above at $1.95, and The Texas Co.'s, 40 and above at $2.20.

Magnolia's new prices on Spindletop are: Grade A, $1.40; Grade B, below 25 gravity, $1.40; 25 to 25.9, $1.45; 26 to 26.9, $1.50; 27-27.9, $1.55; 28 to 28.9, $1.60; 29 to 29.9, $1.65; 30 to 30.9, $1.70; and 31 to 31.9, $1.75 per barrel.

Heavier Equipment Brought Out to Cope With Seminole Limestone

By Lawrence E. Smith
N. P. N. Staff Writer

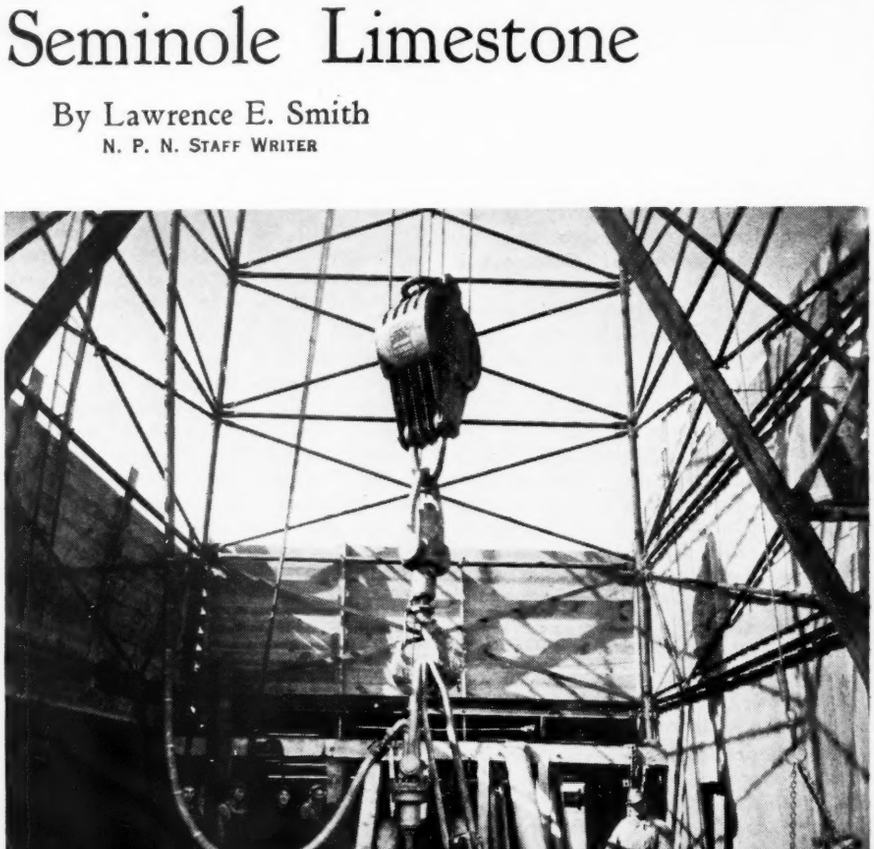
TULSA, Nov. 15

"THEY are asking for a little heavier stuff each day and the Lord only knows where they will stop."

It was a supply man who made the foregoing remark and the particular topic he was discussing was the equipment being used in the Seminole-Searight-Earlsboro district, now the center of activity in Oklahoma.

The nature of the drilling in that field and the heavy loads which the machinery has to handle has brought into operation just about the present limit in size of equipment. In the Garber field some of the outfits were as heavy as those now used at Seminole but, generally speaking, this field is being developed with outfits much heavier than in use in any other Mid-Continent territory and the equal of anything used in California, where heavy duty machinery came into widespread use with the discovery of the extremely deep sands.

Incidentally, the drilling contractor at Seminole has anything but a bed of roses. Many of the rotary outfits in service there represent investments of around $40,000 each and the contractor who is running a half dozen or more, as some of them are, has a small fortune tied up. The hazards of the field are many, breakage is an ever-present evil regardless of the degree of manufacturing skill and the care taken by the contractor. Transportation costs, due to the miserable roads into the field, are excessive. Contractors contend that there is no great amount of nourishment for them in Seminole drilling.



One of the heavy rotary outfits in operation at Seminole Showing extremely large traveling block and 8-inch hook. (Photo courtesy T. J. Moran, National Supply Co.)

The Going Is Hard

THE "digging" in this field is harder, says one contractor, than in any other field he has been in. Another contractor, C. H. Hubbard, sums it up by saying that the amount of hole drilled with fish-tail on five wells in Seminole about equals that he is accustomed to drill in one well elsewhere. Rotary disc and rock bits are necessary to make any headway through the excessive thicknesses of limestone.

Dimensions of the drilling equipment generally used in the field illustrate the trend of the manufacture of rotaries to handle the ever-increasing depths the oil industry is going in search of new production. In the Seminole field derricks are generally 122-foot, some with 24-foot base and some with 26-foot. The several types of steel derricks are represented, structural steel, tubular, angle iron and the combination wood and steel. Few wood derricks are seen. It has been a busy season for the derrick manufacturers, for special precautions are required, in view of the heavy loads of pipe and particularly because the extremely powerful equipment tends to throw sudden excessive forces upon the derrick.

Three Boilers to Each Well

CUSTOMARY practice is to set three boilers for each well. These range in size from 75 to 90 horsepower. In a few cases two 100 h.p. boilers are used, but usual practice is to employ three, two carrying the load and one in reserve, which is also fired up all the time. An average figure for gas consumption in three boilers is around 225,000 cubic feet per 24 hours.

Engines are either 10 by 12 or 12 by 12 twin of the fully enclosed type which runs in oil. Drilling in this field is all steam powered thus far, although it is reported some companies are planning to use electric current to some extent.

Many of the rotary outfits observed by the writer have drawworks of 6-inch line shaft, 6-inch drum shaft, all steel sprockets and 12-inch brake bands with equalizer. The drill stem is 6-inches square with 6-inch swivel.

The general run of pumps in the field are 14 by 7¼ by 14 inch and a pump of this size weighs about 8000 pounds. Two of this size are required for each unit.

Six-inch drill pipe is used, this being extra long—28 to 30 feet to the joint.

Ponderous traveling blocks are the rule. A majority of them are 66-inch—this size referring to the overall length of the side plates. They are roller bearing, 4 shieve and generally have manganese steel shieves. Made up of this metal the cost is high, about $1,400 being an average price and this illustrates well the lengths to which the contractor is now going to get maximum service from the equipment he buys. Such a block weighs about 6400 pounds.

On the crown blocks, which in rotary practice are supplied by the contractor, roller-bearing, manganese steel shieve

type is now generally used at Seminole. The cost of the size and type in use in this field is about $800.

8¼ Inch Set at 3500 Feet

DRILLING practice at Seminole is to start with rotary and drill by this method to 3500 to 3700 feet where the first string of pipe is set. This is 8¼-inch and is all the pipe that is used to this depth except for the short string —60 feet or so, of 15¼-inch used as conductor.

The 8¼-inch is set and cemented at the depth mentioned, using around 400 sacks of cement, usually with some type of cement accelerator. In a few instances the 8-inch was set at about 3000 feet, but this was found to be not best practice because of caving formations below 3000 feet which made it difficult to carry the next string—6⅝-in.— the 900 feet or so through the caves and to the next casing point.

The ideal practice, according to some authorities on the field, would be to drill with rotary to the top of the Viola lime, which is 75-100 feet thick and lies immediately above the Wilcox sand, principal producing horizon of the field. The Viola carries oil and for the present both it and the Wilcox could be produced through the same string. Experience in the Depew district has been that the Viola tends to slough off and liners have to be run. With the 8-inch set on the top of the Viola and a shoulder drilled and left on the top of the Wilcox for the 6-inch, this string could later be set.

One of the advantages of this method would be in connection with the gas lifts which promise to be generally used in the field. As it is now, 4-inch tubing cannot be run inside the 6-inch and leave effective space between the 6⅝-inch and the 4-inch, hence such gas lifts as have been installed are functioning by putting the gas in through 2-inch tubing and raising the oil between the tubing and casing. The reverse of this would be possible under the other plan.

Plans To Revise Practice

THE reason why the suggested plan has not been adopted is that a majority of companies made up their casing programs on the other basis and pipe is either on the ground or in transit. One company, it is understood, plans to complete several of its wells, however, by setting the 8-inch on top of the Viola lime.

There is, however, an advantage to the present method in some instances. The Hunton lime, producing formation above the Wilcox, under the general practice is left behind the 6-inch string and, as it carries considerable gas in some places, it is possible to produce it through bradenhead connections if desired.

One of the problems of the field at times has been the water supply. Considerable reliance is placed on wells drilled to tap a water vein found at 250 to 300 feet from the surface. The experience thus far has been that a new water well will yield about 500 barrels per day, but at the rate at which they are being put down the yield is certain to be reduced. Recent rains have renewed this ground water supply but a prolonged dry spell would add to the troubles of the contractor in making hole rapidly enough to come out on the profit side. Since it requires 2000 barrels or more of water daily for each well up to the place where 8-inch is set and drilling is started with standard tools, the problem of water supply is of more than perfunctory interest and will probably cause some concern when the field is again opened up to unrestricted development. Several long water lines to draw from streams probably will be required.

Reverting to the main topic of this discussion, Seminole illustrates the manufacturing trend in giving the contractor what he requires to get out the production. Cast iron has disappeared almost entirely from the modern heavy duty rotary outfit. Not everything can be forged, but where it cannot, cast steel and alloys are employed. At the rate designers and makers of equipment are going, the contractor who desires to put down one to the 10,000-foot depth that has been so much discussed by engineers and geologists, will find the tools ready.

Seminole Field to Be Main Source Of Natural Gasoline Production

Staff Special

TULSA, Nov. 15

FOUR companies in the Seminole area are building six natural gasoline plants which will have a combined capacity of approximately 86,000,000 cubic feet of gas per day. When these plants are completed gasoline production of the field probably will exceed 175,000 gallons per day, unless there is a surprising decrease in the richness of the gas or a shortage of gas to process.

At present there are three companies in the field with portable plants, which now have a combined production of around 30,000 gallons of natural gasoline per day. Production of these plants was much greater prior to the shut-down agreement. The Carter Oil Co., with two Braun portables, is making around 8000 gallons of gasoline per day and the Empire Gasoline Co., with another Braun portable working largely on Hunton lime gas, is making around 7000 gallons per day.

Independent Oil & Gas Co. was the first to install a portable in the field. It placed a 4500-gallon Newton portable on its No. 1 Fixico deep sand discovery well several months ago. This plant has run as high as 6,000,000 cubic feet of gas per day and made in excess of 24,000 gallons of finished gasoline per day. At the present time the plant is running nearly 4,000,000 cubic feet of gas and is making around 15,000 gallons per day.

The gas on the Independent lease is extremely rich, particularly for

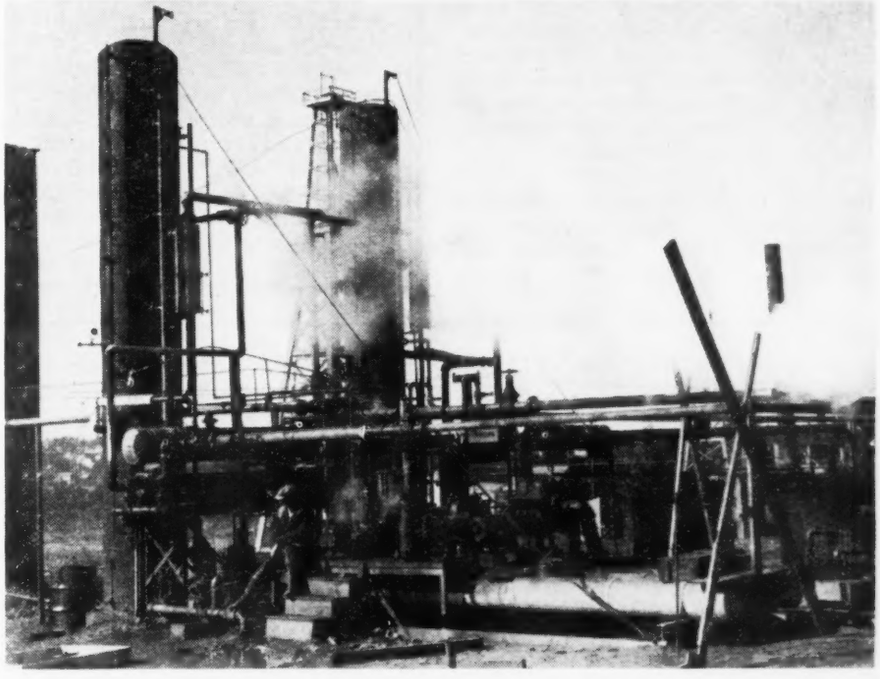


Figure 1—Newton Portable gasoline plant of the Independent Oil & Gas Co. at Seminole equipped with two stills because of richness of the gas.—N.P.N. Staff Photo.

flush gas from a new field. It is testing around four gallons per thousand cubic feet. Because of the richness of this gas the Newton plant was subjected to a tremendous overload. The Newton portable is equipped with a 5000-gallon vertical steam still of the frothing or foaming type. In order to improve the efficiency of the plant, H. Wirshing, Independent's general superintendent, ordered a second steam still and dephlegmator. With a still capacity of 10,000 gallons per day the plant has operated at over 90 per cent efficiency with an overload of more than 100 per cent.

The second still was hooked up in parallel with the first. Orifice plates were inserted in the rich oil line from the absorber to equalize the stream between the two stills. Fig. 1 is a photograph of the distillation equipment of the plant with the two vertical stills shown at the left.

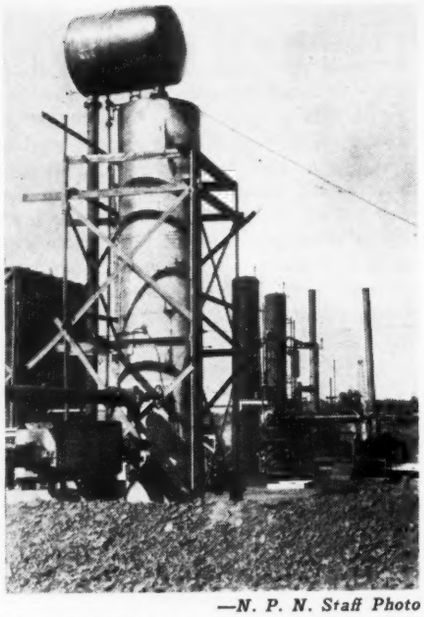
It was not necessary for the Independent to increase the absorber capacity to handle all the gas which has been available thus far. But to completely strip the residue of entrained mineral seal oil Mr. Wirshing has placed his scrubber tank at the top of the absorber as shown in Fig. 2.

Two compressors have been picking up the gas and boosting it to 30 pounds pressure for circulation through the plant and return to the lease for producing operations. Two new twin cylinder Cooper compressors are being installed now to recompress the residue to 300 pounds pressure for a gas lift.

Gas from the Hunton lime wells to the northeast of the deep sand discovery has been testing approximately two gallons per thousand cubic feet. It is for this reason that other portables in the field have not matched the production of the Independent plant.

Table No. 1 is a statement of the gasoline plants now under construction in the field in addition to the portables. On the basis of an average gasoline recovery of two gallons per thousand cubic feet these proposed plants could produce 172,000 gallons of gasoline per day. It is expected that the average recovery will exceed that figure.

The Carter Oil Co. expects to have the first of its permanent absorption plants in operation within the next two weeks. This is the plant being constructed in Sec. 15-9-6. The second,



—N. P. N. Staff Photo

Figuer 2—Bubble type absorber with scrubber tank located on top in an unusual position.—

which is to be located in the Searight field, will not be ready for operation for about 90 days. Both plants will use Braun equipment and will each handle about 20,000,000 cubic feet of gas per day.

Empire Gasoline Co. has ordered a 7500-gallon semi-portable Southwestern plant for Sec. 26-9-6, which is expected to be ready for operation by Dec. 1. At the same time the company expects to have a 12,000,000 cubic foot absorption plant ready for operation in Sec. 24-9-6

The Pure Oil Co. is moving its Newton absorption plant from the Meehan field in Payne county to Seminole. Gas at the former location has dropped down to a point where operation is no longer profitable. This plant is capable of handling 12,000,000 cubic feet of gas per day.

Sinclair Oil & Gas Co. has placed an order for a 12,000,000 cubic foot Newton absorption plant which has been shipped from the factory in Fullerton, Calif.

The Gypsy Oil Co. has made no plans for immediate construction of a gasoline plant on any of its properties in the Seminole district. The gasoline department of the company is making a study of the field and will reach its decision as soon as it is permitted to drill in a few more wells under the shut-down agreement.

In addition to being rich in gasoline content the Seminole gas is fairly sweet so that the treating problem is not great. Water in the field is scarce, that being the major problem for operators to solve. The railroad is close to the field so loading lines will be relatively short and losses from that source not excessive.

How Electricity Serves Coastal Fields

USE of electricity for power in oil field operations generally is growing in the Gulf Coast fields of Texas, where the nature of development has made it easier for public utility companies to supply current to the oil operators than where fields are more scattered.

Eventually, it is likely, electricity for both drilling wells and lifting the oil will come into general use. Paul Wagner, staff writer for National Petroleum News, will tell in the Nov. 24 issue of the electrification of the Gulf Coastal fields and costs of using current.

Cal. Refiners Waiting For Higher Offers

LOS ANGELES, Nov. 13.—The refined petroleum market in California is in rather a chaotic condition. Buyers from the East Coast are ready to make contracts, but their offers are too low to suit the California refiner. If the latter would offer U. S. Motor gasoline at 8 cents, several tanker loads could be sold for shipment to the Atlantic Coast domestic market.

The price range on U. S. Motor, 54-56 gravity, for export, is 8¾ to 9½ cents a gallon, with some of the larger refiners refusing to talk sale under 10 cents. There is a feeling that the market will stabilize shortly. Another angle that worries some refiners with increasing stocks of gasoline is the scarcity of tankers for charter. A clean bottom for the Atlantic domestic trip is worth about $1.10 per barrel, this including loading and canal tolls, while a dirty bottom is ten cents less.

The kerosene market is sluggish with very little of this product moving, except in small lots. The trade has it that tank car loads can be bought at 6 to 6½ cents a gallon, which is the market that has stood for the past two or three weeks. Cargo lots can be shaved to around 5½ cents, but not many refiners care for the business.

Fuel can hardly be said to be making any change, although a recent cargo sold at 80 cents a barrel, while the posted price as quoted by the Standard of California, continues at $1 a barrel. Quite a few sales have been made at 85 cents. Bunkers carry the same prices.

Table No. 1—Natural Gasoline Plants in the Seminole Field as of Nov. 15

Company	Operating Location	Type	Current Production
Carter Oil Co.	Sec. 35-10-6	Port.	8,000 Gal.
Empire Gasoline Co.	Sec. 24- 9-6	Port.	7,000 Gal.
Independent O. & G. Co.	Sec. 26- 9-6	Port.	15,000 Gal.
Total			30,000 Gal.
	Building		**Gas. Capacity**
Carter Oil Co.	Sec. 35- 9-6	Abs.	20,000,000 Cu. Ft.
Carter Oil Co.	Sec. 15- 9-6	Abs.	20,000,000 Cu. Ft.
Empire Gasoline Co.	Sec. 24- 9-6	Abs.	12,000,000 Cu. Ft.
Empire Gasoline Co.	Sec. 26- 9-6	Abs.	10,000,000 Cu. Ft.
Pure Oil Co.	Sec. 26- 9-6	Abs.	12,000,000 Cu. Ft.
Sinclair O. & G. Co.	Sec. 35- 9-6	Abs.	12,000,000 Cu. Ft.
Total			86,000,000 Cu. Ft.

Provisions of Model Gasoline Tax Law Drafted by State Officials

By Ward K. Halbert
N. P. N. Staff Writer

ST. LOUIS, Nov. 13

POLITICIANS, lawyers, office men, tax collectors and oil inspectors got together in St. Louis this week for a conference, a banquet and a bus ride. The conference was to pull some of the kinks out of the red tape connected with administering the gasoline tax.

In justice, it must be said they worked hard. Committees kept late hours and many words were spoken, some of them over and over again. Some good was accomplished. Some old discouragements were exhumed, aired and buried again.

One committee concentrated on a uniform tax rate for six hours at a stretch and gave it up as a bad job. Another committee labored, trying to bring forth a definition for gasoline, and finally in desperation passed the buck to the Bureau of Mines.

Saturday, the third and final day of the conference, found the committee of the whole helplessly at sea, fishing for a new term meaning "oil jobber." They were arguing about whom to tax, and they knew the business man they were talking about, but trade terminology baffled them and the English language fell flat.

"Designate him the individual, co-partnership, association, firm or corporation, however organized, in whose possession the greatest accumulation of gasoline is stored within the state," suggested a man from the Mississippi valley. "That's a refiner," objected a man with a tide water accent.

"Call him an importer," shouted a man from a farming state. "That complicates matters with brokers," protested somebody. "Call him a piccolo player," sighed a man from Oklahoma, feebly fumbling for a Chesterfield.

The official, re-fined recommendation of the conference will be released one of these days, and it will be a well-finished job when it is. But the work has been a remarkable exhibit of dexterity so far, as the soldiers used to say, like picking off cooties with boxing gloves.

The work will be perpetuated. The North American Association of Gasoline Tax Administrators has been organized permanently. William A. McAtee, oil inspector of Missouri, is president. Dues are $25 a year. The next convention will be held in Columbus, O., on a date to be determined.

Progress was made at the conference towards the accomplishment of a uniform gasoline tax law for the various states. The state oil inspectors met with the tax administering officers. In fact the gasoline tax officer and the oil inspector are the same individual in certain states. Oil inspection as such did not cut much figure in the meeting. An elaborate gesture was made to justify the existence of the oil inspector's office, but the whole topic of inspecting oils was side-stepped tactfully. It aroused only passing interest.

The big idea of the gathering was to study the gasoline tax laws now in force and to hear about the advantages and disadvantages of each one, first hand, from the men who have to enforce them. From this information the officials worked out what they consider an ideal set of principles containing the best provisions of all the laws. Each official proposes to take this model draft home with him and get a law enacted some day in his state as nearly like it as his temperamental legislature will pass.

What Officials Wish

ALTHOUGH there is no law like it in any state, all provisions may be found somewhere in some state law. The draft serves to show only what kind of a law the tax officials would prefer to work with. In a general way the officials did what William A. McAtee told them when, as chairman of the meeting and instigator of the conference movement, he addressed them briefly the first morning. Mr. McAtee said:

"Our purpose shall be primarily to consider experience, try to arrive at the wisest and best conclusions possible and not be led into the seductive paths of experimentation and radicalism." Of course, by "wisest and best" he was speaking from the standpoint of a state official. He is oil inspector of Missouri charged with collecting the gasoline tax. The whole movement is Mr. McAtee's. He had the hearty cooperation of three dozen of his fellows but he planned the meeting and directed its mechanics.

Nineteen states and the province of Ontario were represented at the meeting by delegated state officials. There were probably half as many visitors as official delegates. Some of the visitors were on the program. All were accorded the right to attend meetings, sit in committee rooms, ask questions and offer opinions. Some of them served on committees. Among them were D. W. Moffett of Mid-Continent Petroleum Corp.; R. L. Welch, secretary of American Petroleum Institute; H. E. Wormhoudt, Manhattan Oil Co., Des Moines, Ia., representing the Independent oil men of his state; Charles M. Sutherland, secretary of the Nebraska jobbers; George Allee, president of the Missouri jobbers.

Attacking the work at hand early Thursday morning, Mr. McAtee appointed four committees to draft provisions for the "model" law; (1) Tax administration methods, W. S. Booton of Tennessee, chairman, (2) Tax exemptions and refunds, T. W. Bass of Nebraska, chairman, (3) Tax rate and purposes, Solomon Levitan of Wisconsin, chairman, (4) Oil inspection problems, James Duce of Colorado, chairman.

A general meeting was held each afternoon. Afternoons were given over to committee work. The first forenoon session was devoted to inspection and oil specifications, the second to tax matters and the third to approving the work of the committees. Evenings and Saturday afternoon were occupied with entertainment.

Mr. Duce, state oil inspector in Colorado, was the first speaker on the program. He talked about oil inspection and oil inspectors. He suggested four things state oil inspectors might be permitted to do to promote public welfare—none of which they are now doing as a class. He also suggested one thing that oil inspectors ought not to do and a thing that some of them attempt. In brief, Mr. Duce said:

"It is the inspector's function to prevent fraud, not to dictate what kind of oil products the public shall buy. The inspector should be sure that the public gets what the oil dealer's advertising says he will get, such as more power, more miles, better pick-up, no knocks, etc. The matter of motor oil substitution should be in the hands of the oil inspector. The oil inspector ought to have charge of inspecting pumps and oil measuring devices for accuracy. And the oil inspector should have the power to prohibit the sale of motor dopes in his state until they have been tested and proven to do all their proponents say they will. In such a ruling against gasoline improvers, the inspector should be over-ruled only by the United States Bureau of Standards."

The recommendations of Mr. Duce's committee were in line with his address. In its report his committee suggested that oil inspectors (1) collect only enough in fees to finance the operation of the department, (2) that the inspector be vested with "fire marshal authority" to pass upon the hazards at a gasoline plant, (3) that he serve as a "sealer of weights and measures" to the extent that he pass upon the rightness of a measuring device, and (4) that he have power to exclude motor dopes from sale in his state.

Some laughable occurrences took place in the "oil inspection" committee room. One state official maintained stoutly that gasoline ought to be inspected because oil jobbers were likely to mix cheap kerosene with it to make money, and that gasoline

Tax Officials Want Gasoline Business Licensed

OIL men are expected to object to several of the recommendations for a "model" state gasoline law adopted at the conference of state gasoline tax administrators and oil inspectors in St. Louis last week. One section which seems to oil men to be particularly offensive, is the one requiring that dealers be licensed and post a bond to protect the state's money. This, it has been pointed out, virtually places the gasoline business on the same plane as the old time saloon which was outlawed more than seven years ago.

This section provides that the license may be revoked by the tax collecting officer should the oil man fail to comply with the law. Centralizing the authority which says a business may or may not live takes from the oil man a large part of the protection many states granted saloons in that commissions and not individuals usually controlled the granting and revoking of saloon licenses.

Other sections recommend that the tax should be an excise tax applying to the wholesaler and not a sales tax collected at the pump; that all motor fuel whether a petroleum product or not shall be taxed, and that there should be no refunds to any class of consumers. Only the United States government is exempted.

The draft of provisions follows:

"That gasoline taxes shall be assessed and collected by some state official, elective or appointive, and not by any county or city official;

"That the tax shall attach at the wholesaler. That is, the jobber will get the tax money from the people and pay it to the state—with certain exceptions to meet local situations;

"That the term 'gasoline' shall embrace all manner of motor fuels used or usable for propelling an automobile along a road;

"That assessments shall be made upon the gasoline received by the jobber to minimize the number of tax collecting points;

"That 'there is a loss in handling gasoline capable of identification' and the oil man shall be given some allowance for that loss;

"That oil dealers shall be licensed by the state and the tax collecting officer empowered to revoke that license in the event of the oil man's failure to comply with the law. Or, alternatively, the oil men may be required to make bond sufficient to protect the state's money;

"That reports shall be required from the oil men monthly and that settlement shall be made, on or before the 15th of each month, covering taxes collected the previous month;

"That appropriate penalties shall be imposed upon the oil man in the event of taxes becoming delinquent;

"That taxes shall constitute a prior lien on the property of any oil company in case of failure in business. And in case of the unexpected sale of a business the purchaser shall be liable for unpaid taxes;

"That no tax refunds whatever shall be made to any class of consumers because of their excessive cost to administer, their political complications, etc.;

"That all the gasoline in a state shall be subject to the tax except that consumed by the Federal government and that sold for export from the state;

"That the rate of tax shall be determined in each state separately, in proportion to the state's need of revenue for road purposes;

"That the proceeds of state gasoline taxes shall be spent exclusively in building and maintaining state roads and bridges."

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with oil in it was much more dangerous, being more volatile and able to explode.

Thursday Morning Talks

W. J. ARMSTRONG, oil conservation officer of Oklahoma, also charged with oil inspection in the state, made the second talk on Thursday. He discussed the government's difficulty in conserving crude oil supplies, pointing out that oil men in his state do not resent the government's hand in business so long as the administering officer is acquainted with practical oil problems.

S. E. Naugle, assistant attorney general of Colorado, read the paper prepared by A. J. Kraemer of the U. S. Bureau of Mines, which told the history of the government's fixing of oil and gasoline specifications from 1918 to today. It was a technical paper but showed the futility of fixing hard-and-fast gasoline specifications.

Another technical paper was read by Dr. Roy Cross of the Kansas City Testing Laboratories on "Refining Methods and Their Relation to Specifications." Dr. Cross joined with Mr. Duce in ridiculing the popular demand for water white gasoline. He declared that motorists were sometimes harmed more by the chemicals used in making modern gasoline water white than they would be by using motor fuel slightly off color.

"If persons must write up a gasoline specification of practical service for guidance of oil inspectors, there are four things to be considered," he said. (1) Gasoline should not have anything in it injurious to public health, even if it does greatly improve the motor fuel; (2) Buyers should be protected against misrepresentations of quality either by fictitious labels or by implications in colored gasoline; (3) Specifications should not be so strict as to color that they make the refiner put harmful things in his product to bring them to a color (which means nothing) and (4) they should not be so strict as to sulphur content that they make the refiner destroy valuable fractions of his gasoline in quantities in order to meet legal requirements."

Gasoline Tax Advice

CHARLES A. WATERS, deputy auditor general of Pennsylvania, outlined "A Model Gasoline Tax Law" on Friday forenoon when he read a paper by Edward Martin, head of his department. Pennsylvania tax men have been much aggravated in recent months by their awkward method of collecting the tax from filling stations instead of from wholesalers, and Pennsylvania's new draft of their tax law was given close study at this conference. One feature of the Pennsylvania proposition is that it contemplates no recompense to the oil jobber for collecting the tax and little or no allowance to him for outage and loss. In the committee room, M. S. Tarner, chief of the gasoline tax bureau in Pennsylvania, maintained that half of one per cent was ample outage allowance.

Dr. Bass of Nebraska related Friday morning how he had been able to collect every cent of the gasoline tax assessed in Nebraska by keeping on friendly terms with the oil jobbers who showed no disposition to try to beat the tax.

It remained for W. S. Booton, director of excise tax division of Tennessee, to give the oil industry credit for its collecting work. "The gasoline tax is a popular tax," he said. "A gasoline tax is a free horse, and it was never considered a real sporting proposition to ride a free horse to death. No one conversant with the facts will deny that, so far, gasoline tax laws have been administered by the oil people. They run the game and mail in the money. They made no effort to combat the spread of gasoline taxes imposed to meet the cost of highway construction. And since benefits derived are beyond price, we must tote fair and keep the only popular tax popular."

One paragraph of the address of Frank E. Packard, tax attorney of the Standard Oil Co. of Indiana, is sufficient to indicate the trend of his remarks and the state officials received them enthusiastically. Mr. Packard said:

Tax Attorney Talks

"WHEN the citizen of a state is made not only an involuntary tax collector but a revenue insurer as well, in all fairness, he ought to be entitled to a workable and equitable law under which to operate. When the state places such a burden upon a citizen, he ought to be consulted as to the routine of the law and the methods to be employed in discharging his duties. In all but four states the oil distributor has been made a tax collector without compensation either for his services or his losses. It occurs to me that there is a factor in connection with this question of shrinkage that the state ought not to forget, in this unique relation with the tax collector, (i. e., the distributor of gasoline). If the latter feels he is receiving a fair deal at the hands of the state he will cooperate more efficiently than if he feels the state is imposing a heavy burden and responsibility upon him and requiring him to pay a tax on something which has escaped him altogether."

Ohio Gasoline Pump Muddle Causes Fry to Withdraw from State

By Roger B. Stafford
N. P. N. Staff Writer

CLEVELAND, Nov. 15

THE indecision of the Ohio bureau of weights and measures in failing to specify what a gasoline pump should be or should not be, has caused the voluntary withdrawal from the gasoline pump business in this state of the Guarantee Liquid Measure Co., Rochester, Pa., manufacturer of the Fry pump, and a company that is in the front rank of gasoline dispensing equipment.

The Guarantee Liquid Measure Co. posted a letter to the oil trade in Ohio on Nov. 10 saying that, until weights and measures officials of Ohio could give it definite information concerning permanent requirements, it would not solicit any business from gasoline distributors in the state because the distributors could not safely invest their money in pumps.

The pump situation, muddled by inability of officials to define what is passable and what is not passable in gasoline pumps, has been before the Ohio Petroleum Marketers' Association for six months. A committee from the association has called on weights and measures officials at Columbus and on Gov. A. V. Donahey. Except to prevent the universal condemnation of accurate measuring pumps in good repair that were installed previous to 1926, it has been unable to get any satisfaction.

Jobbers' Directors to Meet

DIRECTORS of the jobbers' association are to meet next week in Columbus to take up again the pump question which has been brought to a head by the withdrawal of the Fry people from the Ohio market. The directors and the association's pump committee, comprised of R. C. Heil, Commercial Oil Co., Cleveland, J. L. Marsh, Vahey Oil Co., Youngstown, and O. U. Latto, Latto Oil Co., Uhrichsville, expect to call on the state sealer and Gov. Donahey in an effort to get some centralization of authority in weighing and measuring matters, such as is in force in many other states where gasoline distributors and pump manufacturers are not pestered so long as they use or make equipment that gives the gasoline buyer full measure. Authority in Ohio seems to be divided among the state officials and local sealers in approximately 100 counties and cities.

W. S. Townsend, president of Guarantee Liquid Measure Co., signed the circular letter sent to Ohio jobbers. The letter follows:

TO OUR CUSTOMERS IN THE STATE OF OHIO:

"We are discontinuing the sale of our gasoline pumps in the state of Ohio. We are taking this action for the following reasons:

"1. We are unable to find out what kind of pump the weights and measures officials of the state of Ohio will permanently approve.

"2. We have made change after change in our equipment at the request of the Ohio officials, only to find that after the pumps were shipped into the state the very officials who suggested and demanded the changes then refused to seal the pumps.

"3. We have made pumps according to the suggestions and demands of the Ohio officials, sold them to our customers who have paid for them, the pumps have been installed and sealed, and then at a later date the same official who previously sealed the pump has come back and condemned it.

"4. We have no assurance that a pump we might be permitted to sell you today would meet the Ohio requirements six months from today.

"We, therefore, are forced to take the position that we cannot accept money from our customers for pumps so long as it is highly probable that the customer's investment will be lost through condemnation of the weights and measures officials.

"Whenever definite information can be secured concerning the permanent requirements of weights and measures officials in the state of Ohio and you can safely invest your money in pumps, we will again solicit your business."

No Further Comment To Add

MR. TOWNSEND today had no comment to add to the circular letter, except the Fry organization in Ohio would continue the sale of oil and grease handling equipment, and to reiterate that no pump business would be solicited until they could protect their customers by selling what they knew would be approved.

Three models of the Fry pump were mentioned in the Ohio circular sent out early in September by Charles V. Truax, director of agriculture in Ohio, and ex officio state sealer, as being worthy of a field test. The state would not give an indorsement without reservations. As mentioned in the Oct. 27, 1926, National Petroleum News the field tests brought only grief. Few sealers had the same ideas about what a pump should be. A pump that would be approved in one county would be condemned and locked in another county, perhaps just across the road.

Useless indicators have been made mandatory in Ohio and have forced Ohio gasoline distributors to pay a premium for some contraption that had no function in the measuring of gasoline or protecting a gasoline buyer from short measure if the pump operator chose to "gyp" him.

Theoretically Ohio has adopted the recommended regulations of the National Conference of State Sealers of Weights and Measures which met in Washington last May. But Ohio through J. C. Tinkey, deputy state sealer who has had charge of liquid measuring device regulations, has added a list of "interpretations" which are said to alter much of the recommended code. The "interpretations" are so confusing that the lawyers of one Ohio pump manufacturing company were unable to interpret them. Tests for blind and visible pumps have been confused; ideas have been jumbled, and the whole mess of regulations is bewildering, oil men charge.

Deal in Trivialities

THERE seems to be authority to disapprove a pump offered for sale in Ohio but no authority to approve one. One man, who has followed the pump situation closely for some months, said the state officials were dealing in trivial details and not in principles; that their course would lead to a state in which no improvement could possibly be made in gasoline dispensing equipment. But even with no permanent requirements, he said he did not see how the manufacturers could go ahead with large scale production and sales effort because a pump that would be perfect in Ohio today would be an iniquitous tool of Satan tomorrow.

Jobbers are hopeful that Gov. Donahey will bring order out of the present chaos. When last they saw him, William F. Burke, Kentucky Independent Oil Co., Covington, Ky., president of the Ohio association said, he was in the heat of his campaign for re-election, and asked them to wait until after election day when he would give their complaint careful consideration. He has been re-elected, so they expect to be granted an audience next week.

Fuel Volatility, Engine Performance And Natural Gasoline

By George Granger Brown
Chemical Engineering Department, University of Michigan
Read Before National Petroleum Marketers' Association, Atlantic City, Oct. 27

THE motoring public is generally aware of the fact that ease of starting and acceleration are due largely to the more volatile components in gasoline.

"Detonation" was not recognized except as a carbon knock until about 12 years ago when more efficient fractionating equipment enabled the refiners to produce a greater quantity of gasoline from the crude oil. This product included more of the less volatile material in the gasoline, and compelled the manufacturers of motor vehicles to heat the intake manifold by exhaust gases to prevent condensation of the fuel in the manifold and the accompanying poor engine performance. The less volatile fuel has a greater tendency to "knock" than the old ante bellum fuel. This knocking tendency is still further increased by the heat supplied to the mixture to prevent condensation.

These facts are now generally recognized and most refiners are now supplying a more volatile gasoline than the U. S. Motor specification even in warm weather. The pendulum has reversed and refiners are now trying to produce the most volatile gasoline economically possible rather than the least volatile. This fact is probably due more to the demands of the motor car user for easy starting and good acceleration, even in cold weather, than to fluctuations in the kerosene market.

There are three possible methods of obtaining increased volatility.

1. In fractionating the crude, include only the more volatile components.
2. Continue the cracking process until the less volatile components are destroyed.
3. Blend with natural gasoline.

The facts that Dr. Brown announced grew out of an extended program of research that has been and is going on at the University of Michigan under authority of the Association of Natural Gasoline Manufacturers, which was decided upon at the annual meeting of the association held in Tulsa last spring.

The purpose of the investigation is to determine just what the anti-knock value of natural gasoline is, what its value is as a means of increasing the volatility of refinery gasoline and just how much natural gasoline should be added to straight refinery gasoline to get the results aimed at.

The main points in Dr. Brown's paper were covered in an article published on page 33 of the Nov. 3 issue of National Petroleum News. The official paper is given here, however, together with the cuts that were used to illustrate it at the meeting.

First Not Recommended

THE first method decreases the yield of gasoline, is therefore expensive and not to be recommended from the standpoint of conservation of our natural resources. Blending with natural gasoline increases the yield of gasoline and therefore tends to conserve our petroleum resources. It is also the simplest method of obtaining increased volatility, and is in many districts the most economical.

*An earlier paper reported preliminary results showing the effect of increased volatility obtained by blending natural gasoline on starting, acceleration, and knocking.

Anti-Knock Properties

IN order to determine the anti-knock properties of natural gasoline, three different samples of natural gasoline were blended with a straight-run Mid-Continent U. S. Motor gasoline. The knocking tendencies of these blends were compared with blends of benzol with the same U. S. Motor gasoline.

The results indicate that natural gasoline in blends with straight-run Mid-Continent gasoline containing up to about 50 per cent of natural gasoline, is about one-half to two-thirds as effective as benzol in eliminating the knock and that anti-knock properties of natural gasoline increase with increasing volatility.

In blending natural gasoline with other blending stocks, different results are to be expected. Indications are that when natural gasoline from a field producing U. S. Motor gasoline with bad knocking qualities, is blended with U. S. Motor gasoline of good, anti-knock qualities, very little improvement in the anti-knock quality is to be expected. Our program includes a complete investigation into the anti-knock value of natural gasoline when blended with different U. S. Motor gasolines. These results will be reported later.

Starting and Acceleration

STARTING may be divided into two phases. The first phase is that of getting the first explosion; the second phase, generally referred to as acceleration, is that of keeping the engine running after the first explosion has been obtained.

In order to get sufficient gasoline to form an explosive mixture for the first phase of starting, it is necessary to choke the carburetor. After the first explosion, it should not be necessary to continue the choking for any appreciable period, because the continued use of the choke draws in excessive fuel, causing crank-case dilution and carbon formation.

It is possible to obtain the first explosion without any serious difficulty

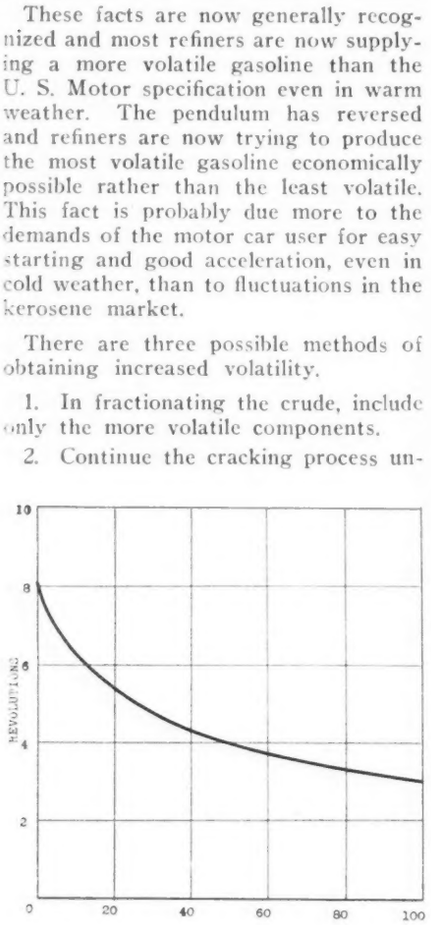


Figure 1—Revolutions Required to Start Motor with Various Natural Gasoline Blends

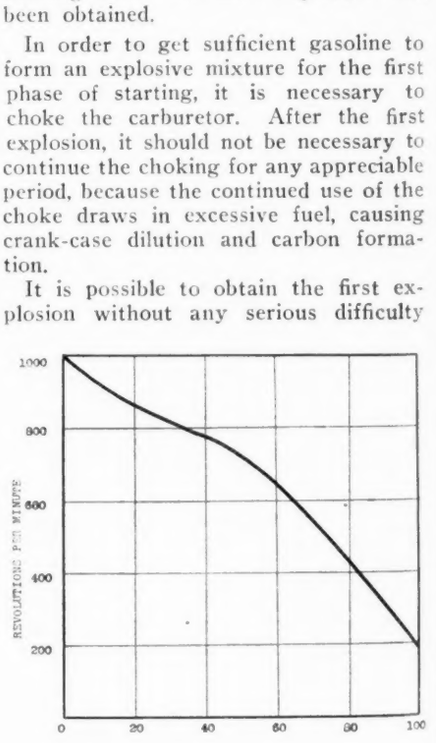


Figure 2—Minimum Speed to Prevent Backfiring Upon Full Opening of Throttle

*Relation of Volatility to Acceleration and Anti-Knock Qualities of Natural Gasoline, Leslie and Brown, Fifth Annual Convention, Association of Natural Gasoline Manufacturers.

with almost any commercial motor fuel if the carburetor is equipped with a tight choke, but it is practically impossible to keep an engine running without excessive choking in cold weather unless the fuel supplied is more volatile than the U. S. Motor specifications.

Figure 1 indicates the number of revolutions required to obtain the first explosion with U. S. Motor gasoline, and with blends containing different amounts of natural gasoline, when using a six-cylinder engine with an unheated manifold. There is a marked increase in ease of starting as the volatility of the fuel is increased by the addition of small amounts of natural gasoline. Above 50 per cent of natural gasoline the increase in ease of starting is less.

Figure 2 indicates the minimum speed in revolutions per minute at which the throttle can be opened to the full position without causing backfiring, with an unheated manifold as exists during the second phase of starting. It is evident from the data represented in figure 2 that an increase in volatility is very necessary to prevent backfiring and engine stalling, when acceleration is attempted in cold weather with an engine not thoroughly warmed up.

In making tests on engines with different fuels, it is necessary that all adjustments and operating conditions be maintained constant throughout the series of tests. It is obviously impossible to maintain constant conditions while an engine is warming up, or to duplicate, with any degree of precision, the warming-up period on different days.

It was found that operating an engine at constant temperature, but with no exhaust heat on the intake manifold, that the warming-up period was reproduced in a satisfactory way for testing different fuels.

The tests reported below were made under two conditions of operation, equivalent to summer and winter service. The conditions representing summer operation were those of operating the engine in the laboratory at an atmospheric temperature of 80 degrees F. and with the full exhaust heat on the manifold, or with heated air supplied to the carburetor according to standard practice.

Cooling Water Kept Constant

THE temperature of the cooling water entering and leaving the engine

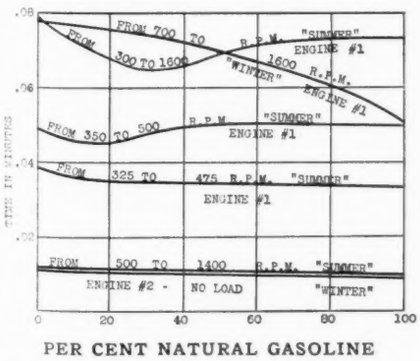


Figure 3—Time Required for Acceleration When Throttle is Suddenly Opened

Dr. G. G. Brown, department of chemical engineering, University of Michigan, who is directing research work on natural gasoline

block was maintained constant during the tests and at those values that are found to be the case during the warming-up period—that is, with the water entering the block at a temperature not more than a few degrees above the atmospheric temperature.

The tests representing the warming-up period during winter operations were made under constant conditions similar to those described above, except that the manifold was not heated by the exhaust gases. In these tests, the crank case oil was up to operating temperature, so that friction losses in the engine were not as great as exist in cold engine in winter operation, but the unheated manifold closely approximates the manifold temperature during the warming-up period in cold weather. As this is the most important factor, conditions of fuel supply were essentially similar to those existing during the warming-up period in cold weather.

Figure 3 indicates the results obtained from these tests as the time in minutes required to accelerate the engine from the first speed to the second speed given on the curves for the different blends tested.

In all of these tests, motor No. 1 is a six-cylinder, air-cooled, valve-in-head motor with automatic spark advance; motor No. 2 is a six-cylinder, water-cooled, valve-in-head engine; motor No. 3 is a six-cylinder water-cooled ell-head motor, with automatic spark advance; motor No. 4 is a four-cylinder water-cooled valve-in-head engine equipped with high compression pistons.

Motors 1, 2, and 3 supply all of the heat to the mixture by heating the intake manifold by exhaust gases. Motor 4 has no heat on the manifold, but depends upon drawing hot air from over the exhaust pipe into the carburetor.

Adjusted for Maximum Power

ALL adjustments to the carburetor and spark were made to give the maximum power with the U. S. Motor gasoline, (No. 13), because no driver is going to re-adjust his carburetor according to the fuel purchased, and a fair test would not be obtained if the carburetor were re-adjusted for each fuel tested.

Actual road tests for acceleration were made with a standard chassis, six-cylinder, ell-head, water-cooled engine.

These tests were made by observing the time required to accelerate from 10 to 40 miles per hour and from 5 to 25 miles per hour, with a heated manifold, and all adjustments standard for ordinary gasoline. In order to eliminate any wind effect the tests were conducted by driving up and down a chosen section of level highway and averaging the results. The second and third columns of Table 1 and the curves of Figure 4 give the results of these tests.

TABLE 1

Percentage of Natural Gasoline in Blend	Minutes to Accelerate Under Warm Weather Conditions 6-Cylinder Chassis—Heat on Manifold	
No. 1	10 to 40	5 to 25
	Miles per Hour	Miles per Hour
0	.400	.200
10	.387	.188
25	.385	.195
50	.390	.200
100	.410	.200

The results of the road tests are exactly equivalent to those obtained in the laboratory, and indicate that a manifold heated by the full heat of the exhaust in moderately warm weather (atmospheric temperature of 60°-70°F.) a fuel volatility corresponding to that of a 30 per cent natural gasoline blend gives the best acceleration to relatively high speeds, and that a fuel volatility corresponding to that of 15 per cent natural gasoline blend gives the best acceleration at low speeds.

Heated Manifolds Used

THE two engines used in the above tests were equipped with manifolds heated by the full heat of the exhaust. Further tests were made on a six-cylinder, valve-in-head, water-cooled engine (engine number two) equipped with an intake manifold heated by the full heat of the exhaust only when the throttle is nearly closed. As the throttle is opened, a butterfly valve in the exhaust pipe is opened automatically, allowing

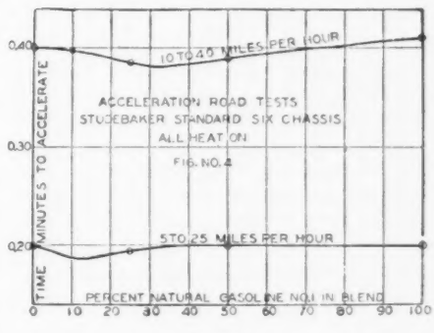


Figure 4

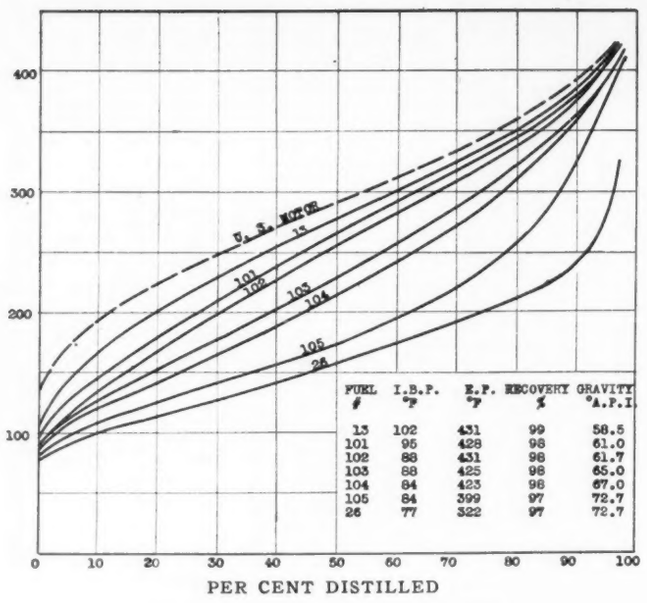


Figure 5—A.S.T.M. Assay Distillations

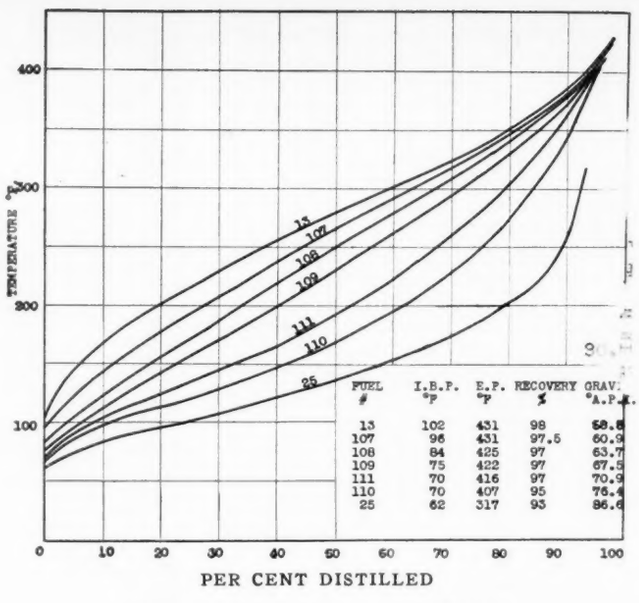


Figure 6—A. S. T. M. Assay Distillations

the exhaust gases to pass directly through the exhaust pipe without heating the intake manifold. Acceleration tests were made on this engine with the carburetor adjusted for maximum power using straight run refinery gasoline in the same manner as has been described. The results (Table 1 and Figure 3) are different from those obtained on engines in which the entire heat of the exhaust strikes the intake manifold, in that there is less difference between summer and winter conditions, and the best acceleration is obtained with the most volatile fuel even under conditions of warm weather.

TABLE 2

Percentage of Natural Gasoline	Minutes to Accelerate 500 R.P.M. to 1400 R.P.M.	
No 1 in Blend	Summer Con.	Winter Con.
0	0.120	0.112
10	0.109	0.1085
25	0.108	0.102
50	0.104	0.101
100	0.102	0.100

Tests on Other Blends

FURTHER tests were made with blends of a typical U. S. Motor fuel (No. 13) containing 10, 20, 35, 50, and 75 per cent of natural gasoline, the natural gasoline sample 25, the natural gasoline sample 26, a low end point gasoline 106, and a low end point gasoline 100. The A. S. T. M. distillation curves of these fuels are given in figures 5, 6, and 7. These tests were made with the carburetor and engine adjusted for maximum power, on fuel 13.

These tests representing summer conditions (Figures 8 and 9) on engines 1 and 3, each of which has a large amount of heat supplied to the manifold, indicate less improvement in performance, as the gasoline is made more volatile, than Motor 2 and Motor 4.

With Motor 2 only a limited amount of heat is supplied to the manifold at open throttle, and with engine 4 all of the heat is supplied in the air which is taken into the carburetor.

The tests representing cold weather conditions (Figures 10 and 11) indicate a marked improvement in performance in all cases, as the more volatile fuel is used, and clearly indicate the necessity of the volatile compounds such as are contained in natural gasoline for good acceleration of a cold engine.

The improvement in performance is very marked as natural gasoline is added to the U. S. Motor gasoline in proportions up to about 50 per cent of natural gasoline with 50 per cent of U. S. Motor Gasoline. Further additions of natural gasoline do not seem to make an equivalent improvement in performance. These facts would suggest that it would seldom be necessary to use a blend containing more than 50 per cent of natural gasoline to obtain the desired engine performance, although blends containing 70 per cent are marketed with complete satisfaction in cold weather.

Various Boiling Points Compared

THESE tests also bring out a very interesting comparison between low end point volatile fuels and fuels of similar volatility having a higher end point and a lower initial. Fuel 106 with an end point of 367° F. shows poorer acceleration than fuel 13, with an end point of 430° F. Yet the distillation curve (Figure 7) of 106 lies below that of 13 except in the range below 190° F.

The same fact is indicated by comparing fuel 100 with an end point of 380° F. with fuel 108 with an end point of 425° F. The distillation curve of 100 lies below that of 108 except in the range below 190° F. yet fuel 108 made

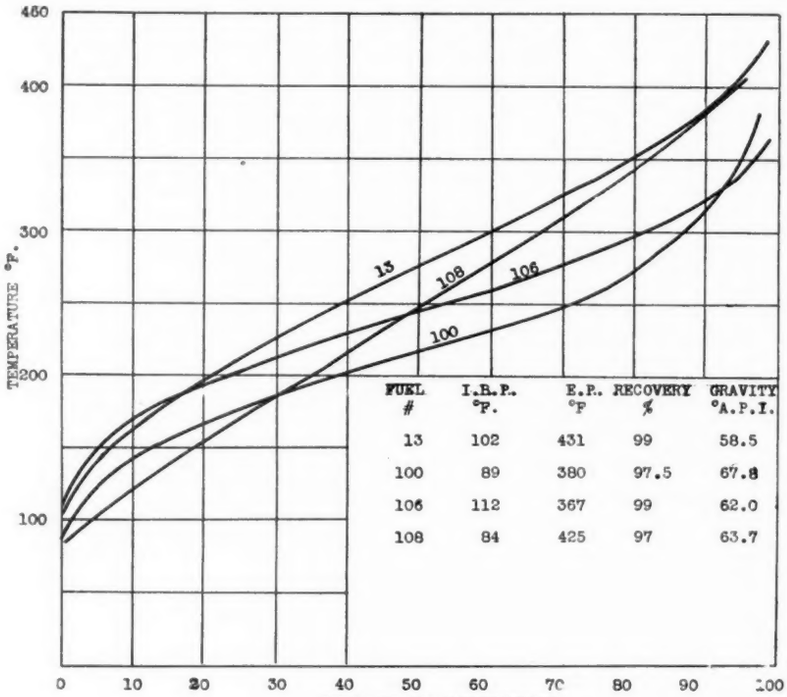


Figure 7—A. S. T. M. Assay Distillations

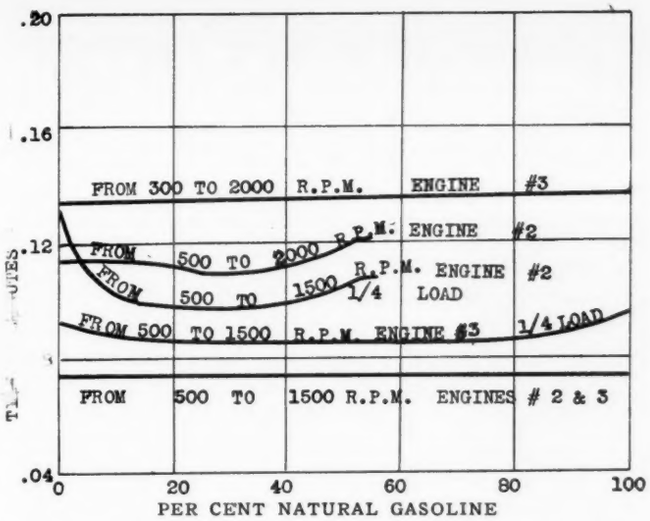

.20
.16
.12
.04
FROM 300 TO 2000 R.P.M. ENGINE #3
FROM 500 TO 2000 R.P.M. ENGINE #2
FROM 500 TO 1500 R.P.M. ENGINE #2 1/4 LOAD
FROM 500 TO 1500 R.P.M. ENGINE #3 1/4 LOAD
FROM 500 TO 1500 R.P.M. ENGINES # 2 & 3
0 20 40 60 80 100
PER CENT NATURAL GASOLINE

Figure 8—Time Required for Acceleration Under Summer Conditions, Motors 2 and 3

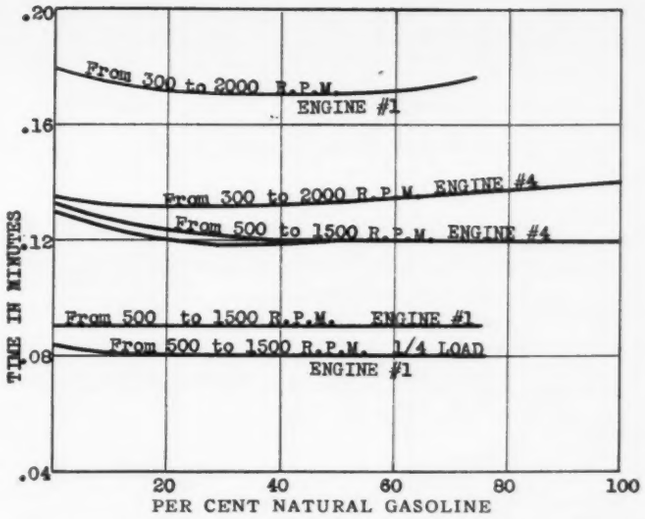

.20
.16
.12
.08
.04
TIME IN MINUTES
From 300 to 2000 R.P.M. ENGINE #1
From 300 to 2000 R.P.M. ENGINE #4
From 500 to 1500 R.P.M. ENGINE #4
From 500 to 1500 R.P.M. ENGINE #1
From 500 to 1500 R.P.M. 1/4 LOAD ENGINE #1
20 40 60 80 100
PER CENT NATURAL GASOLINE

Figure 9—Time Required for Acceleration Summer Conditions—Motors 1 and 4

by blending natural gasoline 25 with U. S. Motor gasoline 13, so that the blend contains 20% of natural gasoline, shows about as good engine performance as the low end point fuel 100.

These facts are direct evidence that low end point is not necessary for ease of starting or good performance in cold weather, but that typical U. S. Motor gasoline can be blended with natural gasoline to produce a fuel having the necessary volatility to give equally good starting and acceleration as any low end point gasoline. A comparison of the distillation curves of these fuels indicates that the part of the curve below 190° F. is equally important, if not actually more important, than the part of the distillation curve above 190° F.

So far as engine performance is concerned, a 370 end point gasoline may be no better than a 430 end point product, and the 430 end point product can be made just as good in starting, acceleration, power, and mileage, if properly blended with natural gasoline, as any low end point gasoline.

Required Percentage Studied

OUR program includes a careful study to determine the amount of natural gasoline that should be blended at different seasons to give the best results. This work has not been completed, but sufficient progress has been made to recommend the following rule with entire confidence that it is conservative, that no trouble should be experienced either in handling through station pumps or in vaporization in gasoline lines or vacuum tanks, if the following suggestion is properly followed.

In order to give more nearly constant engine performance with no changes in adjustment the amount of natural gasoline in the blend should be increased 5% for every 5° F. drop below 70° F. in atmospheric temperature.

Any change in atmospheric temperature above 70° F. can be neglected, for example: If a fuel under atmospheric conditions of 95° F. gives satisfactory performance, and the same performance is desired under atmospheric temperature of 60° F. the above suggestion indicates that 10% of natural gasoline should be added. The 10% being obtained as the difference between 70 and 60, because the atmospheric temperature has dropped 10° below 70.

As much as 35% of natural gasoline (95 minus 60) should be added only after careful testing, as excessively volatile fuel causes trouble in station pumps and may vaporize in the gasoline line or vacuum tank. For this reason, the average **maximum** atmospheric temperature should be carefully considered with the average temperature.

If a fuel is to be used in a district where the temperature varies rapidly between 30° and 50° F. the possibilities of using the fuel under atmospheric conditions corresponding to 50° F. must be taken into consideration. It also seems unnecessary, at the present time, to recommend more than 50% of natural gasoline in a motor fuel blend, even when the fuel is to be used at temperatures considerably below the freezing point.

Especially during the winter season there is every reason for a large percentage of natural gasoline or its equivalent in low boiling point fractions in motor fuel for use in, say North Dakota as against a fuel going to Georgia.

The above suggestions are not concerned with improving performance by increasing volatility, but are simply a guide indicating how a gasoline of fairly constant performance, or volatility under different atmospheric conditions, can be obtained by the simple economical expedient of adding more natural gasoline as the atmospheric temperature drops.

The engine performance data presented above indicate that under summer conditions, (atmospheric temperature of 80 degrees F.), about 10 to 20 per cent of natural gasoline should be blended with ordinary U. S. Motor gasoline for the best engine performance. Some V-type engines may give equally good service on straight U. S. Motor gasoline in warm weather. This type was not included in the above tests.

Preliminary work at low temperatures clearly indicates that U. S. Motor specification fuel used under atmospheric conditions corresponding to temperatures below the freezing point of water, should be so blended as to contain about 50% of natural gasoline.

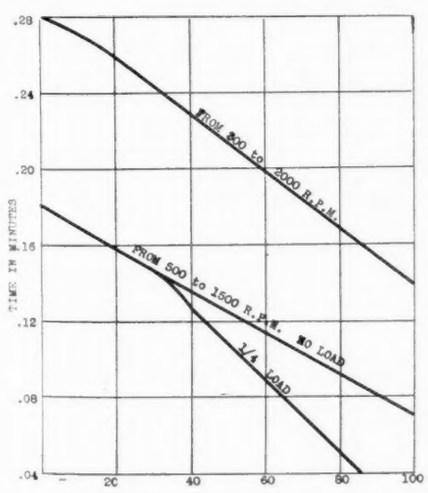


Figure 10—Minutes Required for Acceleration Winter Conditions—Motor 1

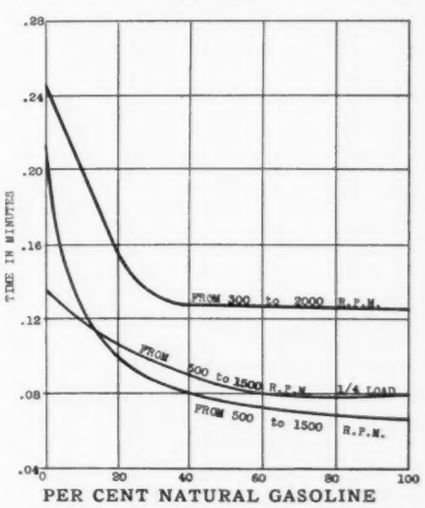


Figure 11—Minutes Required for Acceleration Winter Conditions—Motor 3

State Law for Uniform Gasoline Prices Considered by Texas Jobbers

SAN ANTONIO, Nov. 13. BETTER merchandising of petroleum products and the question of whether the Texas Independent Oil Men shall foster a uniform price law governing gasoline sales in the state were main subjects of discussion at their fourth annual convention in San Antonio, Nov. 12-13. Robert N. Mullin of the Calumet Oil Co., El Paso, was again named president.

The question of fostering a uniform price law and a decision of the association's attitude with regard to legislation requiring the posting of gasoline specifications by retailers were subjects referred to the board of directors, which will act as a committee and report back findings resulting from their studies. The board also will study the question of an anti-rebating law calculated to reach indirect methods of underselling.

Work in this regard will be in the hands of members previously active in the affairs of the association, last year's officers, who were re-elected with one exception, being members of the board. W. M. Harrison, of the Star Producing & Refining Co., Fort Worth, was re-elected first vice president and Louis A. Greene of the Radio Petroleum Co., Fort Worth was again named secretary-treasurer. C. A. Slimp of the Slimp Oil Co., San Antonio, was elected second vice-president to succeed A. L. Chase.

Besides the foregoing members of the board the following directors were chosen: C. V. Millican, Panhandle Refining Co., Wichita Falls; W. C. Gaylor, Gaylor Oil Co., Houston; J. C. Gaither, Gaither Oil Co., Fort Worth; A. B. Slimp, Pioneer Oil & Refining Co., San Antonio; J. B. Russ, Consolidated Oil Co., Houston; Joe Butz, Brownsville; H. R. Kellar, Cooper Petroleum Co., Houston; A. T. Butts, Delta Oil Co., Weslaco; E. J. Lindeman, Ranger Oil Co., Houston.

Mr. Harrison of Fort Worth, who was to have led the discussion on a uniform price law governing gasoline sales was unable to attend the convention. He was to have presented a paper on how these laws function in other states.

Broad discussion of the advisability of such a law took place, however, on the floor of the convention. Opinions varied, the discussion branching out into the question of whether the posting of gasoline specifications by retailers would reach the end sought by showing to the consumer just what he is getting when he buys gasoline. Objections were raised by some of the jobbers present because such a policy would work in with a state inspection system they feared would add to marketing costs.

Robert N. Mullin, Calumet Oil Co., El Paso, reelected president Texas Independent Oil Mens Association.

A suggestion that the association consider whether it would be desirable to have in Texas an organization patterned after the Federal Trade Commission to adjust business practices was also referred to the board of directors as a committee. Considerable opposition to this proposal resulted, two or three speakers referring to the old practice of the federal commission in making public charges brought against companies which were afterwards acquitted of bad practices but in the meantime were virtually put out of business because of the publicity accorded the charges against them.

Taxation was a favorite subject of the association, which was addressed by President J. D. Collett of the Texas division of the Mid-Continent Oil & Gas Association, in addition to other speakers.

Mr. Collett referred to the probability that Texas next year, again would have to contend with a proposal to increase the gasoline tax from 1 cent to 3 cents a gallon. He inveighed against the taxation policy of states which make permanent improvements out of the year's current revenues instead of spreading such costs out over a period of time. He spoke specifically of road building, which he described as permanent improvements except for the topping or surfacing required.

A plea was also made to let the public understand that anything which seriously affects the oil business also affects the people generally. "Let's get in the habit," he said, "of letting the people understand the oil business isn't altogether a game."

O. W. Presnall of the state comptroller's department at Austin discussed the computing and collection of the Texas gasoline tax in the absence of state comptroller, S. H. Terrell. This tax, which is levied against the wholesaler but theoretically passed on to the public, is often put up to the refiner to collect. In other words, the refiner is liable for the tax if he sells to a retailer or consumer.

It was explained by Mr. Presnall that jobbers were entitled to exemption of tax on the quantity of gasoline used in their own trucks, in the promotion of their business, but that in order to obtain such exemption it is necessary to keep a permanent record of gasoline purchases and the total of daily sales. No exemption is allowed for evaporation.

Dr. F. L. Thompson of the Grayburg Oil Co., San Antonio, who attended his first meeting of the association Friday morning, agreed with other speakers that the gasoline tax, especially should it be increased, must be passed on to the consumer; and he made a plea to have it collected by the retailer instead of by the wholesale dealer.

Dr. Thompson said he favored a uniform price law as a corrective for vicious trade practices, also saying that anti-rebating legislation covering indirect methods is desirable. He quoted major companies as being also in favor of such laws.

M. F. Ramsey of the Ramsey Service Station, Fort Worth, and J. R. Klumpp, station manager for the Grayburg Oil Co., San Antonio, discussed briefly retail marketing practices in their respective cities.

Making a $125,000 Gas Station Pay

(Nov. 24 Issue)

"REDMOND is the most original genius in marketing that I know of in the oil business," is the tribute paid to a jobber in Schenectady, N. Y., by L. V. Nicholas, president of the National Petroleum Marketers Association.

This same Redmond claims to own the finest service station in the world. He sells a quart of motor oil for every five gallons of gasoline. His pump boys are college bred.

He belongs to a racing club in order to enjoy the use of a speed track to test his motor fuels for power and pick-up.

Read the details of how this marketer runs his business in the Nov. 24 issue.

—and They'll Save Money for You!

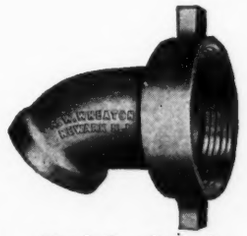
The durability of Wheaton Products—their rugged strength that stands almost impervious to time and wear—is the result of the *Quality* which is built into every Wheaton faucet, valve, joint, coupling, filler, nozzie and connection. And this *Quality*, for which Wheaton Products have long been famed, has enabled them to save money for the hundreds of Wheaton users—*and they'll save money for you!* Send for a sample of any Wheaton Product. Test it for 30 or 60 days, and, if it does not prove wholly satisfactory, you may return it for full credit or refund. Also, write today for illustrated catalog containing full information about all the Wheaton Products.

Type K
Barrel Faucet

Type 60
Filling Pipe Cap

Single Swing Joint

Double Swing Joint



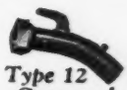
Tank Car Swivel
Reducing Connection

Type A
Tank Truck
Faucet

Type B
Tank Truck
Faucet

Type 24
Tank Truck
Faucet

Anti-Freeze
Valve



Type 12
Gooseneck
Open Hose Nozzle

Type 36
Quick Hose Coupling

Type 25
Loading Valve

Type 50
Wet Hose
Auto-Filling
Faucet

Type 26
Loading Valve

A. W. WHEATON BRASS WORKS
NEWARK, N. J.

Wheaton

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended Nov. 12 (By Telegraph)

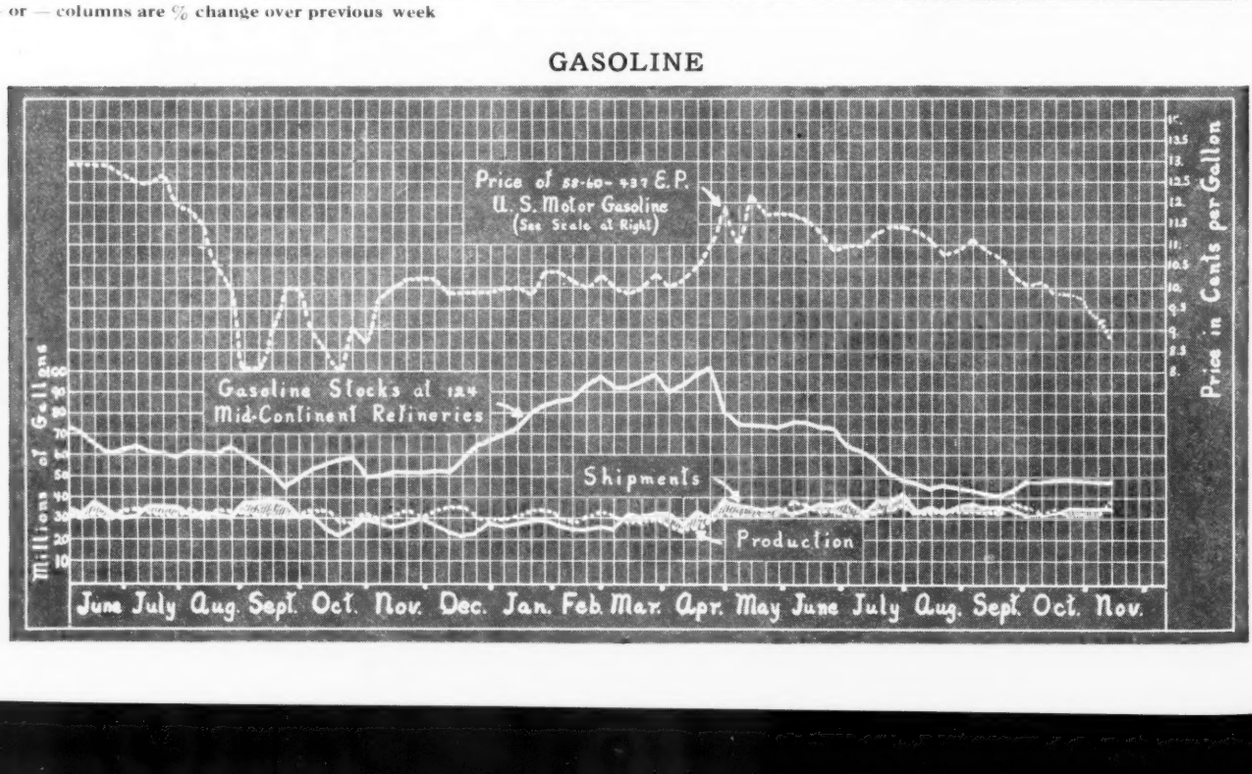
	Kansas	Oklahoma	North and Cent. Texas	North La.-Ark.	Total Week Ended Nov. 12	Total Week Ended Oct.15
Plants Reporting	23	46	41	14	124	124
Crude Cap. (Bbls.)	98,200	165,900	144,300	53,700	462,100	462,100
Cracking Capacity	21,000	45,800	15,750	20,200	102,750	102,750
Da. Av. Crude Runs	59,214 — 3.2	111,776 + 8.7	72,321 +18.2	50,775 + 4.8	294,086 + 7.5	287,286
Da. Av. Other Oils	7,237 + 0.7	—2,495	3,883 —37.5	1,778 — 22.8	10,403 —28.1	11,726
GASOLINE—Gallons						
Stocks Nov. 5	8,863,134	27,702,869	9,123,269	2,432,422	48,121,694	48,709,754
Prod. 11-5 to 11-12	9,389,557 + 4.0	15,570,882 + 8.9	8,449,147 +34.5	3,616,537 + 9.3	37,026,123 +12.5	36,136,361
Ship. 11-5 to 11-12	8,794,750 — 4.2	16,109,372 + 3.2	7,788,297 +28.0	3,483,579 + 2.3	36,175,998 + 5.5	34,969,632
Stocks Nov. 12	9,457,941 + 6.7	27,164,379 — 1.9	9,784,119 + 7.2	2,565,380 + 5.5	48,971,819 + 1.8	49,876,483
Ratio Sales to Prod	93.7%	103.5%	92.2%	96.3%	97.7%	96.8%
KEROSENE—Gallons						
Stocks Nov. 5	3,081,575	5,148,065	2,297,990	459,852	10,987,482	10,076,752
Prod. 11-5 to 11-12	1,671,919 — 8.8	2,256,827 — 6.7	1,751,539 +15.3	450,659 — 23.0	6,130,944 — 3.6	5,463,211
Ship. 11-5 to 11-12	1,712,983 — 0.6	2,676,911 +29.9	1,629,727 +17.9	510,547 — 38.2	6,530,168 + 9.0	4,777,901
Stocks Nov. 12	3,040,511 — 1.3	4,727,981 — 8.2	2,419,802 + 5.3	399,964 — 13.0	10,588,258 — 3.6	10,762,062
Ratio Sales to Prod	102.5%	118.6%	93.0%	113.3%	106.5%	87.5%
STOVE DISTILLATE—Gallons						
Stocks Nov. 5	5,395,555	7,291,754	1,448,836	215,586	14,351,731	10,112,761
Prod. 11-5 to 11-12	917,856 —12.5	701,126 —29.9	392,125 —13.2	47,166 — 12.1	2,058,273 —19.4	2,152,709
Ship. 11-5 to 11-12	701,746 —29.0	850,793 +66.1	457,265 +20.8	31,332 +176.3	2,041,136 + 8.0	1,430,623
Stocks Nov. 12	6,511,665 + 4.0	7,142,087 — 2.1	1,383,696 — 4.5	231,420 + 7.3	14,368,868 + 0.1	10,834,907
Ratio Sales to Prod	76.5%	121.3%	116.6%	66.4%	99.2%	66.5%
GAS OIL—Gallons						
Stocks Nov. 5	7,284,242	30,785,969	13,168,576	2,981,180	54,219,967	55,759,152
Prod. 11-5 to 11-12	11,189,893 —13.0	1,309,512 —52.9	1,570,879 —28.9	2,433,607 — 18.1	6,503,891 —30.3	4,756,161
Ship. 11-5 to 11-12	1,375,614 + 5.7	1,531,612 —50.5	2,638,669 +36.2	2,511,083 — 40.5	8,056,978 —23.6	5,282,211
Stocks Nov. 12	7,098,521 — 2.5	30,563,869 — 0.7	12,100,786 — 8.1	2,903,704 — 2.6	52,666,880 — 2.9	55,233,102
Ratio Sales to Prod	11.5%	117.0%	168.0%	103.2%	123.9%	111.1%
FUEL OIL—Gallons						
Stocks Nov. 5	12,925,734	70,621,836	12,963,470	9,199,458	105,710,498	109,087,260
Prod. 11-5 to 11-12	5,138,262 — 2.8	8,683,358 +20.9	8,311,658 +13.4	7,976,430 + 13.4	30,122,708 +12.2	30,907,964
Ship. 11-5 to 11-12	3,896,059 —35.3	6,804,603 + 6.6	8,983,966 + 6.9	7,215,946 + 20.9	26,900,574 + 0.5	29,303,790
Stocks Nov. 12	14,167,937 + 9.6	72,503,591 + 2.7	12,291,162 — 5.2	9,959,942 + 8.3	108,922,632 + 3.0	110,691,434
Ratio Sales to Prod	75.8%	78.3%	108.1%	90.5%	89.3%	94.8%

Gasoline Produced by Various Methods, Week Ended Nov. 12

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	La.-Ark.	% of Total	Total	% of Total
Straight Run	6,099,510	65.0	9,824,710	63.1	6,937,397	82.1	1,151,322	31.8	24,012,939	64.9
Cracked	2,722,459	29.0	4,901,384	31.5	1,426,028	16.9	2,107,459	58.3	11,157,330	30.1
Natural	567,588	6.0	844,788	5.4	85,722	1.0	357,756	9.9	1,855,854	5.0
	9,389,557		15,570,882		8,449,147		3,616,537		37,026,123	

+ or — columns are % change over previous week

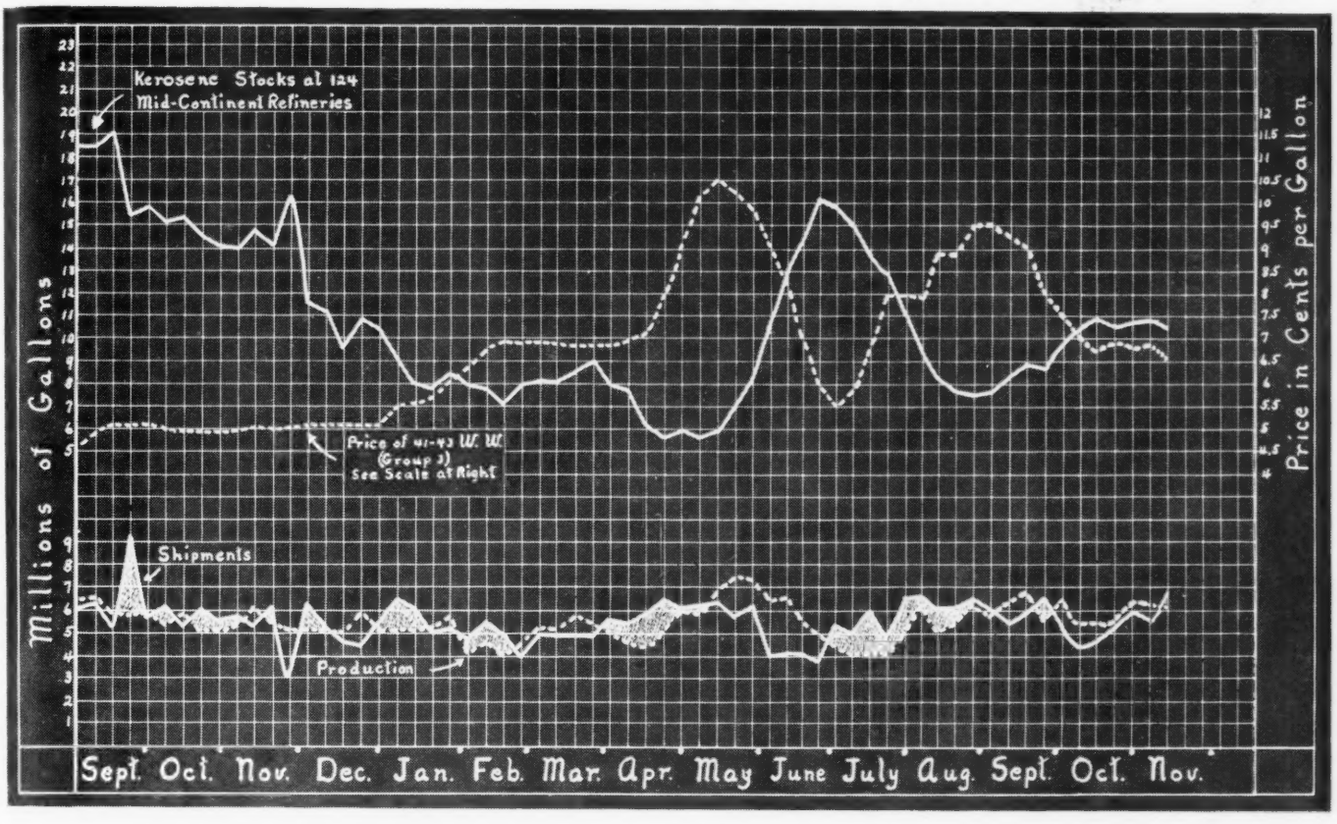
GASOLINE


Price of 58-60- 537 E.P. U. S. Motor Gasoline (See Scale at Right)
Gasoline Stocks at 124 Mid-Continent Refineries
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.

Barometer of Mid-Continent Refinery Market—Week Ending Nov. 12

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News

KEROSENE


Kerosene Stocks at 124 Mid-Continent Refineries
Price of 41-43 W. W. (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.

Gasoline Output Gains 4,000,000 Gallons

Staff Special, By Telegraph

TULSA, Nov. 16

GASOLINE production at 124 Mid-Continent refineries increased 4,000,000 gallons in the week ended Nov. 12 as compared with the total for the week ended Nov. 5, according to weekly operation reports gathered by National Petroleum News. The increase was due to an increase of 20,500 barrels in daily average crude runs.

Shipments increased almost 2,000,000 gallons but the greater production caused an addition of 850,000 gallons to stocks, the total amount in storage at the end of the week being 48,971,819 gallons.

Gasoline production for the corresponding period a year ago was approximately 10,000,000 gallons less while shipments were approximately 9,000,000 gallons under those for last week. Stocks on hand were approximately 2,000,000 gallons less than the total last year at this time.

Texas refiners increased their crude charges approximately 11,000 barrels daily average, while Oklahoma plants increased theirs 9000 barrels. Kansas refiners reduced runs 2000 barrels and the Arkansas-Louisiana group reported an increase of almost the same amount. Oklahoma plants were the only ones shipping more than their production for the week.

Kerosene stocks were reduced approximately 400,000 gallons due to slight reduction in production and an increase of half a million gallons in shipments. Every group of plants except those in Texas shipped more than they produced. Stocks on hand at the end of the week totaled 10,588,258 gallons, approximately 4,000,000 gallons less than for the corresponding period last year.

Colder weather in the consuming territory was reflected in the movement of stove distillates, shipments increasing 850,000 gallons over the total for the week ending Nov. 5. Production of distillates meanwhile was reduced approximately 500,000 gallons.

Gas oil production for the week dropped almost 3,000,000 gallons while shipments fell off 2,500,000 gallons, causing a reduction in stocks of approximately 1,600,000 gallons.

Stocks of fuel oil at the end of the week totaled 108,922,632 gallons, an increase of approximately 3,200,000 gallons. Shipments were virtually unchanged from the previous week while production increased 2,800,000 gallons. The Texas group of refiners were the only ones moving more than their production for the week.

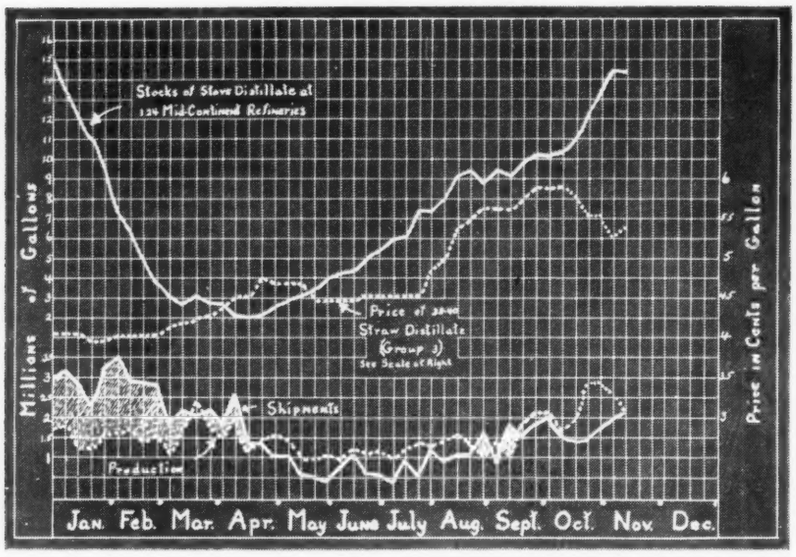
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Nov. 12. Change in stocks figured from Oct. 15.

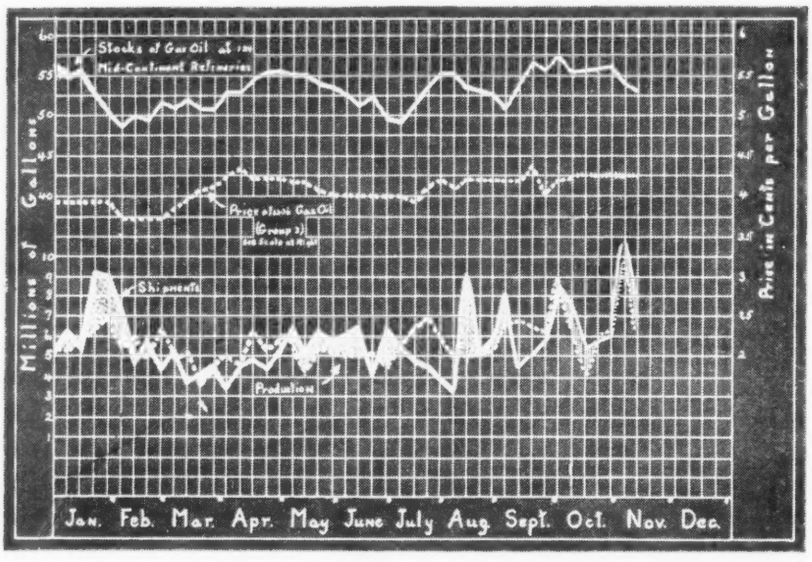
	Gallons
Gasoline	
Production	138,772,449
Shipments	139,677,113
Net change in stocks	—904,664
Ratio sales to production	100.7%
Kerosene	
Production	23,721,008
Shipments	23,894,812
Net change in stocks	—173,804
Ratio sales to production	100.7%
Stove Distillate	
Production	10,355,015
Shipments	6,821,054
Net change in stocks	+3,533,961
Ratio sales to production	65.9%
Gas Oil	
Production	27,853,084
Shipments	30,419,306
Net change in stocks	—2,566,222
Ratio sales to production	109.2%
Fuel Oil	
Production	112,901,030
Shipments	114,669,832
Net change in stocks	—1,768,802
Ratio sales to production	101.6%

Barometer of Mid-Continent Refining Market—Week Ending Nov. 12.

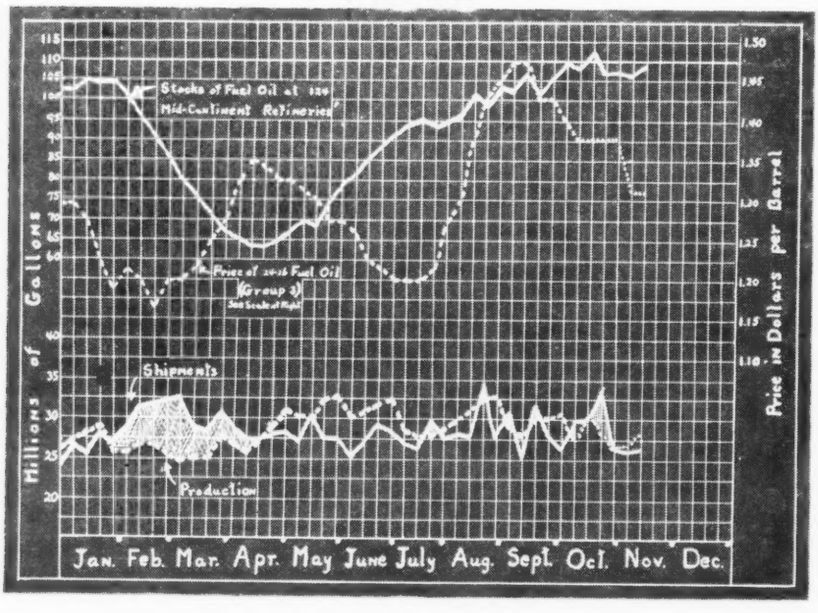
STOVE DISTILLATE


Stocks of Stove Distillate at 120 Mid-Continent Refineries
Price of 30-66 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

GAS OIL


Stocks of Gas Oil at 120 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 2) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

FUEL OIL


Stocks of Fuel Oil at 120 Mid-Continent Refineries
Price of 20-28 Fuel Oil (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Dollars per Barrel
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Wholesale Prices Rise; Trade Volume Lower

WASHINGTON, Nov. 13.—The dollar volume of trade during the first week of November, as seen from check payments, was lower than for either the previous week or the corresponding week of last year, according to the Department of Commerce. The distribution of goods, as seen from figures on carloadings, was the largest ever recorded in the last week of October, loadings for each week of October exceeding the corresponding periods of 1925. The value of new-building contracts awarded the first week of November was slightly lower than for either the previous week or the same week of last year.

Production of bituminous coal in the last week of October was higher than in either the previous week or the same week of last year. Output of beehive coke was smaller than in either comparative period. Lumber production was larger.

Wholesale prices again strengthened as compared with the last week of October and were higher than at any time since midsummer. Prices of most commodities, however, were well below last year.

Loans and discounts of Federal reserve member banks were higher than in either the previous week or the corresponding month of last year. Interest rates on call money were the same as during the previous week and lower than last year, while time-money rates declined, both from the previous week and from a year ago. Business failures, although less than in the previous week, were more numerous than a year ago.

Recession Continues In Auto Industry

NEW YORK, Nov. 13.—Automotive Industries says:

With a majority of the automotive plants on a four or five-day week basis, the industry is marking time, with interest concentrated on the forthcoming national shows and the opening of the 1927 season. Dealers in most lines are comfortably stocked with new cars, and production for at least two months will be almost entirely to meet current market requirements.

Sales are somewhat irregular, and are below the level of a year ago, but this condition is readily explained by the slowness of business in the South and middle West. The decline has not attained the proportions of a slump, and the men in the industry are confident that the locally adverse influences will be overcome in the early months of next year. Sentiment on the whole is cheerful.

With car and truck production in October estimated at 368,000 units, the total for the year to date has been brought to over 4,000,000 vehicles, against 4,336,000 for the previous year.

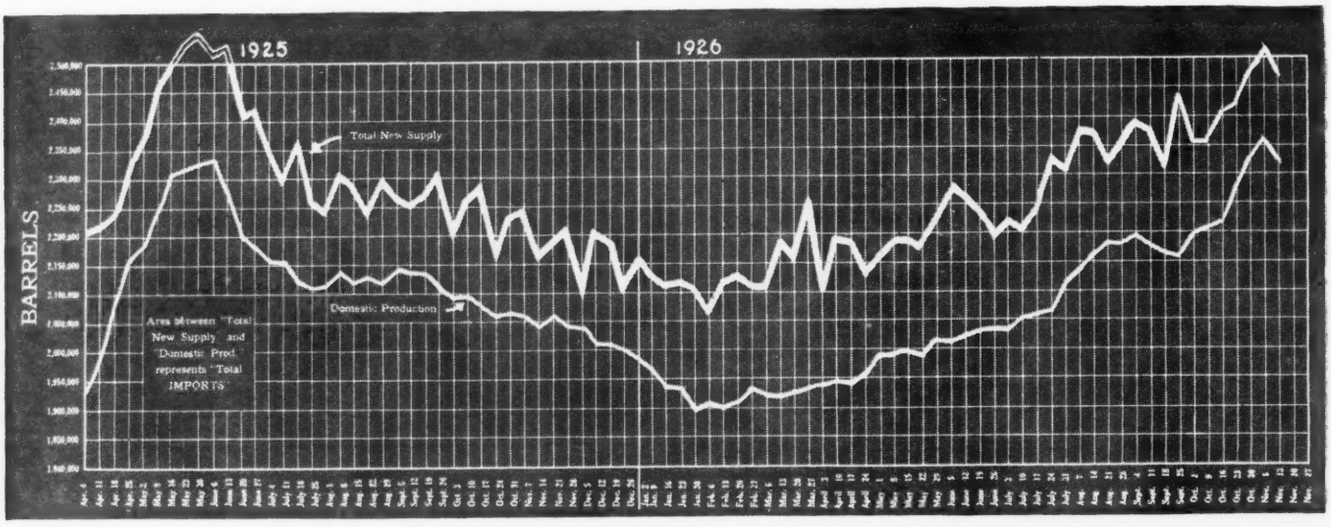
Gone are the days when cracking plants limited to gas oil and light distillates as charging stocks justify the capital investment in view of the rising costs of such stocks

From now on the most profitable refinery operations, if not the *only* profitable operations, will be strictly confined to those plants equipped to produce the greatest gasoline yields, from the cheapest and most plentiful stocks: i. e., fuel oils, topped crudes and low priced crudes run direct and in one operation

Only the Dubbs Licensee will enjoy this freedom of choice and this assurance of steady, substantial profits

Universal Oil Products Company
Owners of the Dubbs Process
310 South Michigan Ave
Chicago, Illinois

Daily Average Crude Oil Production and Imports



Daily average gross crude output of United States, by fields, for week ending with dates given below, as compiled by American Petroleum Institute.

PRODUCTION SUMMARY

	Nov. 13	Nov. 6
Production East of the Rockies	1,710,650	1,722,850
Decrease		12,200
Total Production in U. S.	2,343,850	2,357,050
Decrease		13,200
Crude Oil Imports	119,914	173,000
Decrease		53,086
Total Crude Supply	2,463,764	2,530,050
Decrease		66,286

OKLAHOMA

North Braman	25,600	28,500
South Braman	5,600	6,200
Blackwell	3,800	3,800
Hubbard	2,700	2,700
Thomas	2,050	2,100
Tonkawa	33,550	34,700
Garber	23,100	23,600
Burbank	46,800	48,050
Osage, outside Burbank	34,450	34,450
Watchorn	3,750	3,950
Cushing	21,400	21,450
Yale Jennings	13,300	13,350
Davenport	5,600	5,650
Bristow-Slick	26,950	27,000
North Okmulgee	17,400	17,450
Lyons-Deaner	3,900	3,900
Stroud	1,950	1,950
Cromwell	14,650	15,100
Papoose	9,450	9,250
Wewoka	25,800	25,550
Duncan district	7,400	7,600
Graham	8,850	8,900
Fox	2,000	1,950
Healdton	14,950	14,800
Scholem Alecham	8,050	8,100
Hewitt	11,000	10,950
Seminole	106,550	112,600
Others	66,000	63,900
Total Oklahoma	546,600	557,500
Decrease		10,900

KANSAS

Greenwood County	45,000	45,400
Florence-Covert	1,900	1,950
Peabody-Elbing	4,100	4,100
Eldorado-Towanda	13,600	13,650
Augusta-Fox-Bush	5,000	5,000
Rainbow Bend	3,150	3,300
Russell	4,350	4,400
Churchill	8,100	8,400
Others	28,800	28,700
Total Kansas	114,000	114,900
Decrease		900

NORTH LOUISIANA

Homer	5,500	5,550
Haynesville	8,800	9,150
Caddo, light	10,500	11,150
Caddo, heavy	3,850	3,450
De Soto, Red River	4,100	4,200
Elm Grove	550	600
Bellevue	1,800	2,100
Cotton Valley	6,950	6,950
Urania	14,850	14,350
Total North Louisiana	56,900	57,500
Decrease		600

ARKANSAS

El Dorado	6,500	7,100
Smackover, light	13,750	13,850
Smackvover, heavy	114,000	115,100
Stephens	1,550	1,500
Nevada	1,950	1,800
Lisbon	6,650	6,850
Total Arkansas	144,400	146,200
Decrease		1,800

NORTH TEXAS

Burkburnett	14,650	14,200
Electra	16,800	16,600
Iowa Park and K-M-A	4,000	3,950
Wilbarger	15,850	14,850
Montague-Cooke	10,750	9,650
Hutchinson County	147,750	148,300
Balance Panhandle	14,450	13,200
Archer County	34,800	34,200
Others	950	950
Total North Texas	260,000	255,900
Increase		4,100

EAST CENTRAL TEXAS

Mexia	11,300	11,300
Currie	800	750
Richland	1,400	1,400
Corsicana-Powell	24,700	24,800
Wortham	6,400	6,300
Nigger Creek	11,500	11,950
Total—E. Central Texas	56,100	56,500
Decrease		400

WEST CENTRAL TEXAS

Stephens County	10,850	10,950
Eastland County	5,550	5,650
Desdemona	1,700	1,700
Young County	8,250	7,600
Brown County	15,600	14,550
Palo Pinto County	450	450
Callahan County	3,450	3,900
Shackleford County	12,600	10,550
Reagan County	31,150	30,500
Coleman County	500	500
Crane and Upton Counties	17,950	16,100
Mitchell-Curry Counties	3,950	3,700
Others	1,650	3,150
Total West Central Texas	113,650	109,300
Increase		4,350

SOUTHWEST TEXAS

Luling	20,000	20,400
Laredo District	16,500	16,300
Somerset	1,950	1,950
Lytton Springs	3,350	3,650
Piedras Pintas	250	50
Others	550	550
Total Southwest Texas	42,600	42,900
Decrease		300

GULF COAST

Goose Creek	7,650	7,900
Hull	21,400	21,250
Saratoga	1,250	1,250
Blue Ridge	1,800	1,700
Damon Mound	1,050	1,050
Batson	1,700	1,650
West Columbia	9,650	8,650
Humble	4,300	4,150
Pierce Junction	7,350	5,050
Sour Lake	6,850	7,650
Spindletop	81,800	87,050
Orange County	6,500	7,350
Edgerly	850	800
Evangeline	1,400	1,250
Vinton	5,800	5,750
Lockport	3,050	3,500
South Liberty	5,350	5,000
Big Creek	1,350	1,550
Boling	2,600	2,550
Others	1,900	1,900
Total Gulf Coast	173,600	177,000
Decrease		3,400

ROCKY MOUNTAIN

Wyoming

Salt Creek	42,600	44,250
Grass Creek	3,000	3,050
Elk Basin	800	800
Big Muddy	3,200	3,150
Lost Soldier	5,500	5,750
Rock River	2,750	3,000
Teapot Dome	1,150	1,000
Lance Creek	900	900
Others	2,150	2,000
Total Wyoming	62,050	63,900
Decrease		1,850

Montana

Cat Creek	2,600	2,600
Sunburst	15,000	16,000
Others	250	250
Total Montana	17,850	18,850
Decrease		1,000

Colorado

Moffat (Craig)	2,600	2,500
Fort Collins	3,400	3,450
Florence	550	550
Others	750	750
Total Colorado	7,300	7,250
Increase		50

New Mexico

Artesia	3,000	3,000
Hogback	800	850
Table Mesa	250	250
Rattlesnake	550	550
Total New Mexico	4,600	4,650
Decrease		50
Total Rocky Mountain	91,800	94,650
Decrease		2,850

California

	Nov. 13	Nov. 6
Santa Fe Springs	46,500	47,000
Long Beach	95,000	95,000
Huntington Beach	66,000	72,000
Torrance	26,500	27,000
Dominguez	21,000	21,000
Rosecrans	15,500	15,000
Inglewood	40,000	39,500
Midway-Sunset	94,000	94,000
Ventura Avenue	57,200	54,700
Seal Beach	2,500	1,800
Others	169,000	*167,200
Total California	633,200	634,200
Decrease		1,000

EASTERN

Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.	111,000	110,500
Increase		500

*Revised.

Seminole Shutdown Brings Reduction Of 6000 Barrels In Field's Output

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Nov. 13

AFTER reaching its highest point in nearly three years last week, Oklahoma production declined more than 10,000 barrels daily average this week, averaging 546,350 barrels daily, according to National Petroleum News estimate.

The principal factor in this decrease was the Seminole field, the output of which was reduced about 6000 barrels, brought about through pinching in of wells and proration of runs under an agreement entered into by operators in the field. Seminole's production averaged 106,500 barrels a day this week, as compared with 112,560 barrels last week, the second successive week in which it has exceeded 100,000 barrels daily. It was making 34,000 barrels a month ago, and 17,000 barrels two months ago, thus having added about 90,000 barrels to Oklahoma's crude output in 60 days. In addition to the decrease at Seminole, almost all other fields in the state evidenced a downward tendency this week. Burbank went off 1300 barrels and Braman fell 3700 barrels.

Tonkawa also was down about 1100 barrels. Other fields showed only slight differences from the preceding week. The feeling has gained considerable ground during the week that the crude market will not be cut by the Prairie Oil & Gas Co. as long as Seminole operators are successful in holding back that field's potential flood of oil.

Crude Market May Hold

PRAIRIE officials had intimated, it is said, that if the situation gets no worse than it is at present, which means if the Seminole agreement is adhered to and if developments are retarded in the new Earlsboro field, the crude market will remain as it is, as in their opinion the price of crude is not too high. Both Prairie and Sinclair, dominant figures in the crude-buying division of the industry, as well as other purchasers which have not reduced their prices in line with those posted some time ago by the Carter Oil Co., are being flooded with requests for connections from producers whose oil is being taken by the Carter, The Texas Co., or Magnolia Petroleum Co. In most cases, however, these requests are being refused by Prairie and Sinclair.

An interesting feature of the week's development was the effort being made by the producers to hold back drilling in the Earlsboro field where the Gypsy Oil Co. drilled in a large Wilcox sand producer early in the week. A number of conferences of operators were held and another was scheduled for Monday at which time it was hoped that an agreement will be reached. In the ordinary course of events, a discovery such as that of the Gypsy's would result in the starting of possibly 25 wells, and might mean another Seminole within 70 to 90 days, but the proponents of the shutdown hope to cut this number down materially and to keep the field under control from the start, avoiding a repetition of the Seminole spectacle.

If the most optimistic plan is adopted, only the three offsets to the Gypsy well will be drilled now, but an alternative scheme calls for the drilling of about 12 wells on selected locations in the vicinity. E. B. Reeser, president of the Barnsdall Corp. and chairman of the Seminole operators' committee has again been in the forefront of the fight to bring about the Earlsboro shutdown. John M. Lovejoy, general manager, Amerada Petroleum Corp., also has been active in his efforts to bring about an agreement.

Ray M. Collins, the Seminole umpire, will act in a similar capacity at Earlsboro if the shutdown is agreed upon. The Gypsy well is making about 100 barrels an hour at nine feet in the Wilcox sand topped at 4272 feet. It is not pinched in, according to reports, but has not been deepened during the week, and probably could be making considerably more oil if it were drilled farther.

Two Big Wells At Seminole

IN Seminole, two big Wilcox sand wells were brought in during the week which are now producing more than 15,000 barrels together. As far as known they have not been pinched in but probably will be or else a more drastic proration must be enforced on other wells in the field if production is to be kept at level of pipe line facilities, which now are estimated at about 110,000 barrels daily. Latest available production figures from the field show 32 Wilcox sand wells producing 100,665 barrels a day, but this figure did not include a full day's output of one of the new wells mentioned.

Today's Wilcox sand output probably is 7000 barrels more than the figure given. The 15 Hunton Lime wells were making 9435 barrels, giving the field 110,100 barrels from 47 wells. Both new wells are "permitted" locations and were drilled in under terms of the operators' agreement. One of them Prairie Oil & Gas Co., No. 1 Strothers, located in the SW corner of 27-9-6, is reported to be flowing 400 barrels an hour, or at the rate of 9600 barrels a day, although its last 24-hour gauge was 7585 barrels.

It topped the Wilcox sand at 3990 feet and is now at a total depth of 4010 feet. At this depth, it is one of the highest wells in the field on the Wilcox, its sub-sea elevation on that horizon being 3092 feet, as compared with 3089 feet in Sinclair No. 1-B Cudjo, its diagonal southeast offset, which is the highest well. The Prairie well is the first producer in section 27 and is the farthest west well in the field to date.

The other new well is T. B. Slick No.

Drilling Operations in Oklahoma, Kansas and North Texas

	Nov. 13 — Week Ending — Nov. 6									
OKLAHOMA	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
Burbank	3	15	31	...	49	5	19	21	...	45
Other Osage	12	22	46	2	82	13	30	35	3	81
Bristow-Cushing	14	19	118	11	162	14	23	118	10	165
North Oklahoma	8	19	132	53	212	7	22	132	57	218
South Oklahoma	22	40	170	31	263	23	32	177	33	265
Muskogee	..	8	61	13	82	...	7	68	14	89
Okmulgee-Bristow	2	64	141	29	236	3	65	136	24	228
Tonkawa	1	...	11	3	15	1	...	11	3	15
Wewoka-Cromwell	37	56	268	29	390	34	54	255	28	371
Total Oklahoma	99	243	978	171	1491	100	252	953	172	1477
KANSAS	64	75	220	92	451	69	90	197	94	450
NORTH TEXAS										
Eastland County	..	1	47	3	51	...	1	50	10	61
Stephens County	..	9	16	14	39	....	4	19	19	42
Texas Panhandle	..	183	346	89	618	...	158	365	89	612
Mexia District	..	3	4	2	9	...	3	5	4	12
E. Texas Wildcats	..	5	8	19	32	...	5	11	15	31
W. Texas Wildcats	..	142	375	101	618	...	122	398	95	615
Wichita Falls	..	101	139	45	285	...	100	138	52	290
Total N. Texas	...	444	935	273	1652	...	393	986	284	1663
GRAND TOTAL	163	762	2133	536	3594	169	735	2136	550	3590

Completions in N. C. & E. Texas, & Panhandle Week Ending Nov. 13

Archer County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Marland	8-Turberville	Carson	1502–1518	25
Texas	12-Turberville	Carson	1498–1525	500
Tidal	2-Turberville	Carson	1510–1520	300
Murchison-Fain	5-Logan	Allison	1113–1128	25
Hammond et al	1-Gilliland	SP	T.D.1850	Dry
Texhoma et al	10-Kemp	WV Lds	T.D.1799	Dry
Chenault et al	7-Tuberville	Carson	T.D.1603	Dry
Chenault et al	8-Tuberville	Carson	T.D.1495	Dry
Simms-Burns	2-Tuberville	Carson	T.D.1710	Dry
Wanderer et al	1-Ray	Harris	T.D.1550	Dry
Magnolia	1-Graham	SSO	T.D.1512	Dry
Jeffers	1-Andrews	Farley	T.D.1095	Dry
Mid-Tex	1-Baggett	Sanders	T.D. 650	Dry

Brown County

Mear et al	1-Turner	Cluberson	T.D.1635	Dry
Humble	6-Kilgore	Delgado	1185–1198	75
Humble	7-Kilgore	Delgado	1178–1193	50
Kone	8-Kilgore	Delgado	1999–1211	60
Kone	11-Kilgore	Delgado	1198–1212	50
Texas	5-Hickman	Benson	1204–1220	75
Hoffman	7-Kilgore	McClure	1244–1256	10
Pandem	6-Westerman	Mitchell	1253–1267	10
Bradstreet	2-Fomby	Smith	1154–1166	40
Ray	2-Fomby	Smith	1195–1200	40
McLester	10-Wooldridge	Gaines	1250–1282	147
Hill-West	11-Newton	Mitchell	1200–1216	30
Bowers et al	2-Eads	Day	1313–1322	125
Lester	7-Fry	Canudoin	1203–1212	526
Humble	1-Fry	Stubblefield	1328–1332	150

Carson County—Panhandle

Gulf	18-Burnett	I&GN	3117–3125	750
Gulf	19-Burnett	I&GN	3008–3100	12M
Marland	3-Burnett	I&GN	3060–3111	20M

Cooke County

Sun	6-Hyman	Moss	1179–1189	25
Lanier et al	7-Hyman	Moss	1230–1322	35
Lanier et al	9-Hyman	Moss	1181–1185	35
Shasta	1-Meder	Henry	T.D.2202	Dry
American	1-Dennis	Moss	1186–1218	50
Hoosier	5-Dennis	Moss	1233–1294	100
Hoosier	6-Dennis	Moss	1195–1201	75
Sun	5-Hyman	Moss	1190–1266	45

Coleman County

Flannigan	1-Overall	Woolsey	T.D.2625	Dry
Gray	1-Haynes	Bonds	T.D.1543	Dry

Crane County

Gulf	3-McElroy	GCSD	2741–2850	225
Independent	1-Hughes	GCSD	2471–2333	80
Independent	3-Taylor	Sapp	T.P.2030	315

Eastland County

West Adams	1-Ramsower	H&TC	T.D. 500	Dry

Extor County

Richardson	1-Henderson	TP	T.D.3537	Dry

Fisher County

Ideal	1-Martin	H&TC	T.D.3495	Dry

Gray County

Wilcox	11-Reynolds		T.D.3225	Dry
Cranfill	1-Noble	H&GN	T.D.3200	Dry

Gray County—Panhandle

Magnolia	8-Merton	I&GN	2940–2960	192
Magnolia	10-Merton	I&GN	3045–3123	100
Magnolia	11-Merton	I&GN	3016–3123	70
Magnolia	12-Merton	I&GN	3147–3170	106
McMan	2-Reynolds	I&GN	3026–3159	200
McMan	4-Reynolds	I&GN	3057–3124	90
Wilcox	7-Reynolds	I&GN	2955–2987	300

Hutchinson County—Panhandle

Goldeline	1-Whittenburg	15-X	3031–3036	20
Goldeline	2-Whittenburg	GCSF	3082–3086	25
Gulf-Panhandle	28-Dial	H&GN	2951-T.D.	85
Amerada	3-Whittenburg	H&TC	3018–3021	20
Goldeline	1-Whittenberg	H&TC	2937–2948	10
Empire	3-Johnson	H&TC	2869–2900	250
Empire	3-Johnson	A&B	2910–2973	96
Gulf	12-Johnson	H&TC	2886–2985	65
Marland	8-Johnson	M&C	2945–2959	1230
Center Dome	2-Orichard	D&SE	2770–2825	25
Gulf	4-Whittenberg	Whitley	2856–2990	350
Hughes	7-Kingsland	D&SE	2790–2825	50
Phillips	3-Smith	M&C	2755–2980	1725
Dunnigan et al	2-Whittenburg	M&C	2945–3029	50
Japhet	4-Smith	M&C	2710–2782	100
Gulf	3-Cockrell	M&C	2900–2946	40
Gulf	4-Cockrell	M&C	2915–2981	50

Limestone County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Transcontinental	3-Rossen	Varella	2538–2839	20
Killam et al	1-Montgomery	McAdoo	T.D.3266	Dry
Evangelin	1-Bass	Varella	T.D.3690	Dry

McClennon County

Pecan Gap	1-Punchard	Sanchez	T.D.2134	Dry

Montague County

Texas	1-Cunningham	Byane	T.D.2531	Dry
McElreath et al	1-McCracker	Kaufman	T.D.2155	Dry
Gulf	3-Howard	Votan	1102–1158	30
Gulf	4-Howard	Votan	1156–1161	160
Texhoma	2-Rowland	Votan	1080–1105	110
Texhoma	3-Rowland	Votan	1076–1165	75
Texhoma	4-Rowland	Votan	1064–1095	259
Farlyn	1-Maddox	Thompson	876– 891	75
F H & E	6-Howard	Chambliss	800– 812	10
F H & E	3-Howard	Chambliss	1128–1134	30
Humble	10-Maddox	Thompson	872– 885	50
Olean	8-Maddox	Chambliss	849– 865	70
Pure	2-Maddox	Chambliss	830– 859	50
Texas	3-Maddox	Thompson	872– 879	52
Texas	1-Maddox	Thompson	890– 891	100
Texhoma et al	3-Maddox	Thompson	868– 892	85
Texhoma	11-Howard	Chambliss	1101–1108	22
Texhoma	4-Maddox	Thompson	869– 892	42
Texhoma	5-Maddox	Thompson	880– 906	65
Texhoma	6-Boulding	Chambliss	1050–1068	70
Texhoma	15-Rowland	Chambliss	1053–1078	225
Texhoma	16-Rowland	Chambliss	1055–1069	190
Arco	2-Salmon	Zuber	897– 910	25
Texhoma	13-Howard	Chambliss	974– 992	52
Texhoma	4-Jones	Donoho	879– 887	20
F H & E	3-Salmon	Little	950– 956	15
Texhoma	3-Salmon	Zuber	909– 931	20

Navarro County

Sun	2-Swink	Hudson	T.D.2995	840

Nolan County

Hucaney	1-Seers	Stockman	T.D.3033	Dry

Palo Pinto County

Moore et al	4-Stewart	TP	1470–1501	10
Morrisey et al	1-Satterfield	TP	T.D. 980	Dry

Reagan County

Texon	5-Group	Univ.	T.D.3310	Dry
Big Lake	91-Univ.	Univ.	2925–2940	1920
Big Lake	95-Univ.	Univ.	2890–2911	1800
Big Lake	97-Univ.	Univ.	2860–2905	1460

Shackleford County

Carter et al	2-Huskey	TEL	439– 446	10
Hydes-James	1-Moberly	ET	1128–1140	900
Rosier-Pendleton	6-Cook	ET	1134–1151	829
Rosier-Pendleton	12-Cook	ET	1220–1228	50
Rosier-Pendleton	13-Cook	ET	1312–1324	75
Rosier-Pendleton	31-Cook	ET	T.D.1379	160
Rosier-Pendleton	36-Cook	ET	1325–1330	95
Tannehill	2-Moberly	ET	1121–1134	300
Tannehill	3-Moberly	ET	1118–1130	10
Republic	1-Stephens	TEL	1012–1015	15
Halmack	1-Reynolds	TP	959– 995	20
Heck et al	4-Reynolds	TP	1227–1230	30
Lee et al	1-McLemore	Stacel	T.D.1202	Dry
Rosier-Pendleton	3-Cook	ET	T.D.1195	Dry
Gwinnup	1-Poindexter	TP	T.D.1510	Dry

Stephens County

Sun	4-Rochelle	TP	2218–2237	3 ¾M

Tom Green County

Worley	1-Pullman	H&TC	T.D.4039	Dry

Upton County

Dixie	7-Hughes	TEL	2039–2158	400
Independent	9-Taylor	Sapp	2060–2095	100
Independent	4-Burleson	Jones	2285–2315	66
Marland	5-Estep	MK&T	2315–2326	2064
Marland	14-Danger	King	2228–2270	40
Marland	30-Burleson	Jones	2170–2205	60
Marland	31-Burleson	Jones	2171–2190	155

Wheeler County

Upham	1-Martin	H&GN	1950–2030	10M
McFarland et al	1-Detchelhoffer	H&GN	T.D.2401	Dry

Winkler County

Barnadon-McCamey	1-Abrams	TP	T.D.3502	Dry

Wilbarger County

Phillips	8-Waggoner	H&TC	2390–2324	200
Phillips	4-Waggoner	H&TC	2290–2292	1109
Phillips	3-Waggoner	H&TC	1861–1864	100
Phillips	7-Waggoner	H&TC	1810–1813	90
Phillips	5-Waggoner	H&TC	2340–2370	225

Young County

Allday	1-Campbell	TEL	T.D.1016	Dry
Romer et al	2-McClatchey	TEL	T.D.1202	Dry

1 Franks, in the SW of NE of section 35, an east offset to Sinclair No. 1-A Cudjo, which is still producing around 6000 barrels daily pinched in. The Slick well is making 7300 barrels in the Wilcox sand topped at 4012 feet and penetrated to 4029 feet. Its structural elevation on the Wilcox is minus 3162 or 22 feet lower than its west offset, but 48 feet higher than the Independent-Garland discovery well a half-mile to the north.

On completion of this well, Mr. Slick announced that he would build about 1,000,000 barrels of steel storage in section 6-8-7. Work was started on these tanks this week. There was about 18,000 barrels of steel tankage on the lease when the well was brought in, so that its production has been handled without waste.

Well Fails to Flow

THE Indian Territory Illuminating Oil Co. got a surprise when its No. 2 Bowlegs was drilled into the Wilcox sand from 4063 to 4109 feet and failed to flow although it had a hole full of

They O.K. Wilson Machines

Save Money

Several years ago we purchased a Wilson Electric Welder. We use this machine daily and give it very hard service. It has been very satisfactory and saved us considerable money on castings.

Birmingham Machine & Foundry Co.

3 Years' Satisfaction

We have had a Wilson Arc Welder in operation here at our factory for approximately three years, and it has given us the best of satisfaction.

Crossley Machine Co. Inc.

A Good Investment

The Wilson Plastic Arc Electric Welding Machine purchased from you some time ago has given us satisfaction and we consider the investment a good one.

Imperial Oil Refineries, Limited

Wide Range — Close Control

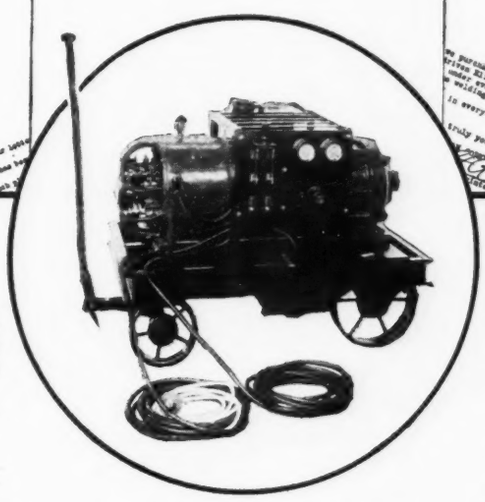
We have had a portable Wilson Electric Arc Welding Machine about two years. This is a splendid machine and has given thoroughly satisfactory results. On account of the wide range and close control obtainable, we have found it particularly valuable for welding cast iron.

Sun Shipbuilding & Dry Dock Co.

Welds at Distance of 1000 Ft.

We have successfully used our Wilson Plastic Arc 200 Amp. gasoline-driven electric welder under every condition possible to use such a machine — on two or three occasions welding at a distance of 1000 feet from machine without loss of power.

Donovan-Corkery Logging Company



The above is a Wilson Type S Single-Operator Motor-Driven Electric Welding Machine — designed for both production and repair work, and adapted for use wherever power is available. Its capacity is 25 to 250 amperes. Other Type S Machines include both single and two-operator units — gasoline-engine-driven, belt-driven and motor-driven — portable and stationary. Capacities, 25 to 200, 25 to 250, and 25 to 500 amperes.

Type S Features

Every Wilson Type S Machine has a simple, compact control panel; a *self-exciting* generator; an arc that is easy to strike and easy to maintain; a current adjustment by a simple turning of a field rheostat knob; a commutator that always shows *less temperature rise than any other part of the machine.* The welding current can be reduced to as low as 25 amperes for welding thin-gauge metals. These features—many of which are found in no other machine—make the Wilson Type S the choice for practically every kind of welding. And you can select just the right Wilson Welding Machine to meet your own particular operating conditions. Write today for full information and prices.

In Constant Use

Our Wilson Electric Arc Welder has been in constant use from eight to twelve hours per day since its purchase. We can recommend this machine very highly.

The Scranton Pump Company

10 Machines 6 Years Old

We have, as you know, many Wilson machines in practically constant use and ten of them over six years old. When we need a new machine you will hear the usual, "When can you ship?"

Hutton Welding Company

Bought Five More

The original Wilson Welding Machine you sold us about four years ago is still in service. The fact that we have since purchased three additional motor generator sets and two gas-driven units should be proof enough of our satisfaction.

The Weldmech Company

No Maintenance Expense

We are well satisfied with our Wilson Welder and consider it has been a good investment. It is nearly two years since we took delivery of this outfit, and with exception of regular inspection, cleaning, etc., there has been no maintenance expense to speak of.

Sherbrooke Railway & Power Company

Excellent Satisfaction

Our Wilson Welding Machine has been giving excellent satisfaction and we are very much pleased with it.

Hardie-Tynes Manufacturing Co.

WILSON WELDER & METALS CO. INC., WILSON BUILDING, HOBOKEN, N. J.

WILSON

WELDING MACHINES AND WELDING WIRE

Completions in Oklahoma and Kansas, Week Ending Nov. 13

Caddo County

Company	Well No.	Location	Depth	Initial Prod.
English	1	SEc NE SW 31-6-9	2356–2385 OWD	20

Carter County

Company	Well No.	Location	Depth	Initial Prod.
Magnolia	5	NEc NW 19-1-3W	3095–3100	60
Gypsy	3	SEc SW NE 3-2-3W	2155–2246	855
Franklin et al	9	NWc SE NW 3-2-3W	2002–2429	390
Franklin et al	19	NEc NW 3-2-3W	2474–2979	60
Skelly	1	SWc NW SW 8-2-2W	2825–2905	85
Skelly	2	NWc SW 8-2-2W	2715–2727	143

Creek County

Company	Well No.	Location	Depth	Initial Prod.
Bu-Vi-Bar	1	SEc SW 11-17-8E	2612–2620	2M
Alvard-West	3	CEL NE SW 14-17-8	2256–2296	20
Shaffer	1	SWc 16-17-8	3468–3509	540
Olean	1	NEc 36-15-7	T.S.3230	66M
Quinlan et al	2	SEc NE NW 20-14-10	2805–2833	75
Wilcox	8	NWc SE NW 2-15-8	3623–3664	140
MidWest et al	2	SEc SW SE NW 17-19-9	2207–2218	2M
Wright	13	NWc SE SW 24-17-10	1850–1884	25
Graham	1	NEc SW NE 32-16-9	2633–2707	25
Texas et al	1	SWc NE NW 21-17-8	T.D.3480	Dry
Benson	2	NEc NW NE 5-18-12	T.D.1620	Dry
Regal	4	NWc 18-18-12	T.D.2370	Dry
G & M	1	NWc SE 14-17-9	T.D.3287	Dry
Future	1	NWc SW NW 4-16-12	T.D.2747	Dry
Tibbens	1	NWc 8-14-9E	T.D.3734	Dry

Comanche County

Company	Well No.	Location	Depth	Initial Prod.
Appleby	1	SEc NW 5-1-10W	T.D.1497	Dry

Garfield County

Company	Well No.	Location	Depth	Initial Prod.
Roxana	1	SWc NE 34-24-3W	P.B.4857	25
Sinclair	62	SW NW NE 13-22-4	3650–3660	375
Sinclair	1	C SE NE 10-24-4	T.D.3502	Dry
Shaffer-Gardener	1	NWc NE 32-24-4	T.D.4779	Dry
Imo	1	NEc NW NW 6-21-3	T.D.3850	Dry

Garvin County

Company	Well No.	Location	Depth	Initial Prod.
Smith	7	SEc SW SW 14-1-3W	4181–4190	25

Grady County

Company	Well No.	Location	Depth	Initial Prod.
Carter	3	SWc SE SW 27-3-5W	1670–1685	20
Critchlow et al	2	SEc SW NW 27-3-5	1447–1453	30M
Garvin	1	NEc SE 34-3-5	1394–1396	50

Hughes eCounty

Company	Well No.	Location	Depth	Initial Prod.
Transcontinental et al	6	SWc NW SW 26-9-9E	4078–4135	100
Gypsy	2	SEc 27-9-9E	T.D.3460	Dry

Jefferson County

Company	Well No.	Location	Depth	Initial Prod.
Homaokla	1	SEc 5-4-6W	T.D.3155	Dry

Kay County

Company	Well No.	Location	Depth	Initial Prod.
Strosnyder et al	1	SWc NW NW 25-29-1E	T.D.4018	Dry
Miss. Valley	1	SEc 20-28-2W	T.D.4887	Dry
Ingram et al	2	NWc NE 35-28-3W	T.D.3250	Dry
Comar	3	NEc NW 8-28-1W	3465–3475	139
Blackwell	4	NWc NE SE 5-27-1W	3435–3444	120

Lincoln County

Company	Well No.	Location	Depth	Initial Prod.
Prairie	1	SWc NE 8-15-6	4042–4212	20
Prairie	1	SEc SW NW 35-14-6	4170–4218	90

McIntosh County

Company	Well No.	Location	Depth	Initial Prod.
Gilcrease	1	SWc NW SW 35-12-15	T.D.3500	Dry

Murray County

Company	Well No.	Location	Depth	Initial Prod.
Humble	1	NEc SE NW 4-2-3E	T.D.2778	Dry

Muskogee County

Company	Well No.	Location	Depth	Initial Prod.
West	2	NWc NE NE 3-16-15E	990–1003	21
Culp et al	6	CEL NE SE 30-15-16	1549–1552	460

Nowata County

Company	Well No.	Location	Depth	Initial Prod.
Prairie	30	SEc SW NW 31-25-17E	T.D. 494	Dry
Prairie	12	CEL NW SW 24-25-14E	T.D. 991	Dry

Okfuskee County

Company	Well No.	Location	Depth	Initial Prod.
Terrian et al	1	SEc NW 14-11-10E	3200–3207	∫ 100
Binham et al	1	NWc SW SW 15-13-8	T.D.2475	Dry

Okmulgee County

Company	Well No.	Location	Depth	Initial Prod.
Stout	2	NWc SW SW 20-16-14	1705–1739	210
Anglo-Tex	1	NWc 29-16-14	1733–1775	35
Le Bean et al	1	NWc SE SW 23-15-11	2812–2852	2M
Jordan et al	5	CEL SE SW 28-15-12	2140–2143	45
Pine	2	SWc 3-15-14	1611–1617	65
Texas	11	CWL E½ SW SE 16-15-14	2370–2387	100
Hutchinson	5	NWc SE 2-14-14	1450–1460	10
Cumberland	5	CNL NE NW 21-13-14	1645–1673	10
Iron Mtn	12	NEc SW NW 24-13-14	1290–1310	11
Abbott et al	1	NE SE SW 24-14-11	T.D.2888	Dry
Kessler et al	1	NWc SW NW 29-11-12	T.D.3075	Dry
Kirkland	3	CNL SE NW 17-15-13	T.D.2610	Dry
Hennessey et al	3	CWL SE SW 8-15-14	T.D.1935	Dry
Cline	7	NEc NW 19-15-14	T.D.2434 OWD	Dry
X-Ray	3	SWc SE NE 24-14-13	T.D.2661	Dry
Drew Beams	2	NEc SE 15-14-14	T.D.1775 OWD	Dry
Simons et al	10	NEc NW SW 19-14-14	T.D.2653	Dry
Simms	19	NEc SW SW 15-13-14	T.D.1680	Dry

Osage County—Burbank

Company	Well No.	Location	Depth	Initial Prod.
Marland et al	1	NEc NW 3-26-6E	2780–2845	543

Osage County

Company	Well No.	Location	Depth	Initial Prod.
Ross-Brown	14	NW SW SE 15-29-11E	964– 976	2
Simmons	3	CNL SW NW NW 31-29-12	989–1017	12
Texas	2	SW NW NE 13-24-8	2611–2621	360
McCuen et al	6	NWc SE SE NW 15-24-8	487– 502	15
Skelly et al	2	SWc SE SW 35-22-8	2498–2523	170
Gillespie	8	SWc NE 5-20-12	1412–1457	12
New England	1	NEc NW 16-25-8E	T.D.2755	Dry
Gypsy	1	SW NE NE 11-21-7	T.D.3010	Dry

Pawnee County

Company	Well No.	Location	Depth	Initial Prod.
Minnehoma	4	CWL NW NW 24-21-7	2733–2742 OWD	100
Adamson	8	SEc SW SW 32-21-8	2870–2917	35
Magnolia	3	NEc NW NW 9-22-3E	T.D.4225	Dry

Payne County

Company	Well No.	Location	Depth	Initial Prod.
Deep Rock	1	NE SE NE 27-18-3	T.D.4411	Dry
Deep Rock	2	NWc NE SW 23-18-3	4190–4244	30
T. C. M	3	NWc NE NW 26-18-3	4214–4298	604

Seminole County

Company	Well No.	Location	Depth	Initial Prod.
Sinclair	11	C S½ SE SE 33-11-8	1720–1845	10
Magnolia	1	NWc NE SE 27-8-8E	3208–3221	13½M
Plover	4	NWc SE SE 7-9-8E	3271–3332	115

Seminole County—Seminole

Company	Well No.	Location	Depth	Initial Prod.
I. T. I. O	8	SWc NW SE 24-9-6E	4192–4204 OWD	3890
I. T. I. O	1	SWc NE 24-9-6	4165–4179	125
Indep. et al	1	NWc SW SE 26-9-6	4091–4095	4649
Pure	4	NEc NW SW 26-9-6	4040–4049	4600
Pure	5	NWc NE SW 26-9-6	4185–4992	330
Tidal	1	SEc NW 26-9-6	4100–4107	2040
Sinclair	1	NWc 35-9-6	3842–3850	8450

Stephens County

Company	Well No.	Location	Depth	Initial Prod.
Pace et al	2	SWc SE NW 12-2-8W	2084–2090	200
Ill.-Okla	1	SWc SE SE 19-1-8W	T.D.2810	Dry
Carter	7	CWL SW NW 30-1-8W	T.D.2335 OWD	Dry
Pearce-Brown	6	SEc NE SE 27-1-8W	T.D.1616	Dry
Magnolia	4	NWc NE 3-2-5W	T.D.1565	Dry

Texas County

Company	Well No.	Location	Depth	Initial Prod.
Reiter-Foster	1	SEc NW SW 9-3-15E	T.D.3500	Dry

Tulsa County

Company	Well No.	Location	Depth	Initial Prod.
Superior	3	CSL SW SW 6-19-10E	2001–2060	150
S. S. Home	5	C NE SE 13-19-11	2250–2260	75

Wagoner County

Company	Well No.	Location	Depth	Initial Prod.
Smith et al	1	NWc NE NE 20-18-15E	1203–1214	3M
Lear	1	NWc SW 28-18-17E	1045–1064	2M
Dickinson	3	NEc NW NE 6-17-15	1300–1335	12
Blackwood	5	NWc SE SW 20-17-17E	T.D.1289	Dry
Mitchell	1	NWc SE SW 28-16-16	T.D.1948	Dry
Denton et al	1	SWc NW SE 35-16-17	T.D.1860	Dry

KANSAS

Barber County

Company	Well No.	Location	Depth	Initial Prod.
Brown et al	1	C NW NW NW 14-34-11W	T.D.1500	Dry

Butler County

Company	Well No.	Location	Depth	Initial Prod.
Vickers	1	C NW NW SW 2-25-3E	T.D.2765	Dry
Hoyt et al	1	C SW NE NE 17-27-6E	3120–3125	40
Mid-Kansas	3	C SE NW NW 23-27-7	2697–2763	150
Herron et al	1	C SW SW NE 30-28-7E	2818–2828	50
Tidal-Skelly	1	C NE SE SW 15-32-4	3362–3365	40

Chautauqua County

Company	Well No.	Location	Depth	Initial Prod.
Prairie	1	SW NW NE 5-32-9E	T.D.2863	Dry

Chase County

Company	Well No.	Location	Depth	Initial Prod.
Empire	2	C SW 31-18-7E	T.D.1289	Dry

Cowley County

Company	Well No.	Location	Depth	Initial Prod.
Ark. Fuel	1	C SE SE NE 12-30-4	T.D.3489 OWD	Dry
Shawver et al	2	C SE SE NW 11-30-4	T.D.2826	Dry
Marland	1	C SW SW SE 31-34-3	1505–1525	24M

Elk County

Company	Well No.	Location	Depth	Initial Prod.
Watchorn	1	C SW NE SW 23-29-10	T.D.2460	Dry
Pure	12	NWc NE SE 14-31-10	1629–1642	225
Cosden et al	6	CNL N½ NW NW 34-29-10	1975–1990	15

Greenwood County

Company	Well No.	Location	Depth	Initial Prod.
Empire	16	C NW NW SE 11-22-11E	1859–1869	130
Empire	14	C NE SW NE 14-22-11	1901–1915	220
Mid-Cont	2	C SE SE SW 4-22-12	1820–1845	20
Simmons et al	6	C SW NE NE 9-22-12	1821–1846	60
Callahan et al	1	C SW SE SW 28-22-13	1871–1886	50
Jennings et al	1	C NE NE SE 17-23-11	1928–2020	40
Mission	8	SWc SE NW 27-23-13	1756–1780	20
McGinnis et al	11	C SE SW SW 30-24-11	1850–1880	300
Osage	1	C SE SE SE 31-25-11	1959–1972	85
Bisagno et al	1	C NE NE NW 6-25-13	1671–1682	20
Tidal	29	SWc NE SW SW 2-26-8E	2364–2418	50
Beacon	6	CWL W½ NW NW 24-26-9	2135–2145	75
Callahan et al	1	C NE NW SW 23-22-11	T.D.2092	Dry
Schwartz et al	1	C NE NE SW 36-23-9	T.D.2244	Dry
Snyder et al	1	C SE NE SW 13-23-11	T.D.1940	Dry
Valley-Osage	1	C SE SW NE 33-26-13E	T.D.1540	Dry

Kingman County

Company	Well No.	Location	Depth	Initial Prod.
Phillips	1	C NW 16-28-8W	T.D.4177	Dry

Lyon County

Company	Well No.	Location	Depth	Initial Prod.
Transcontinental	10	CSL NE SW 30-21-10	2200–2240	75

Sumner County

Company	Well No.	Location	Depth	Initial Prod.
Roxana	2	SEc NE SW 25-31-2E	1825–1884	2200
Roxana	3	SEc NE SE SW 25-31-2	1823–1883	500
Roxana	2	SWc SE 25-31-2	1854–1885	1092
Wentz	1	NWc SW SE 25-31-2	1838–1886	1068
I. T. I. O	1	C SW SW NE 17-32-2	3444–3474	157
Prairie	2	NW NW SE 34-34-2	T.D.3794	Dry

Woodson County

Company	Well No.	Location	Depth	Initial Prod.
Altomite	1	C NW SW SW 35-25-13E	T.D.1531	Dry
Prairie	11	NWc SW NW 29-23-14E	T.D.1680	Dry

oil. This well is a south offset to Independent-Garland No. 2 Fixico which made about 3000 barrels initial and is one quarter mile north and east of No. 3 on the same farm, which made 10,500 barrels initial. The I. T. I. O. Co. applied to the umpire for permission to shoot No. 2 in an effort to get it to flow and it is likely that the permission will be granted, as nothing was said in the shutdown agreement about shooting wells which were allowed to be drilled in. Several other wells on the permitted list are at depths which indicate they may be completed in the next week or 10 days, thus adding to the difficulties of the umpire, as all of them are in favorable looking locations. Carter Oil Co. is below 4170 feet in its No. 3 Stewart, in the NW of SW of 34-10-6, Searight pool, after getting the Hunton lime at 4050 feet.

In this same section, Mid-Continent Petroleum Corp. No. 1 Grayson, in the NW of SW SW is drilling at 4260 feet. Prairie Oil & Gas Co.'s No. 2 Kingkade, in the NW of SE of 33, also in the Searight pool, is drilling at 4300 feet after getting the Viloa lime at 4279 feet.

To Run Special Trains To Institute Meeting

Staff Special

CHICAGO, Nov. 13.—Two railroads have announced special train service for oil men to the American Petroleum Institute meeting at Tulsa Dec. 7, 8, and 9. They are the Illinois Central and the Chicago & Alton.

The Illinois Central will have a special train out of Chicago at 11:45 a.m. Dec. 6 to St. Louis. The train will leave St. Louis at 7:30 p.m. Dec. 6 on the Frisco lines and arrive in Tulsa at 7:30 a.m. the next day. Regular trains leave Chicago at 11:45 a.m. daily on the Illinois Central, arriving in Tulsa at 7 o'clock the next morning. The special train will have a club car.

Special cars on the Chicago & Alton will leave here at 11:30 a.m. Dec. 6 and St. Louis via Frisco lines at 6:58 p.m. on a special train. They will arrive at Tulsa at 7 a.m. Dec. 7. Cars leaving Chicago at 3 p.m. Dec. 6 will arrive in Tulsa at 2 p.m. the next day.

There are trains out of Tulsa on the Frisco at 12:05 p.m. and 6:18 p.m. daily. These trains arrive in St. Louis at 11:30 p.m. and 7:35 a.m., respectively, and in Chicago at 7:45 a.m. and 4:30 p.m. the next day after departure.

Fare from Chicago, one way, is $25.44; lower berth $8.25; upper berth $6.60; drawing room $30; compartment $23.25. Oil men must obtain certificates when buying the one-way ticket to Tulsa in order to get the reduced fare on the return trip.

ERIE, PA.—Consolidated Gas & Oil Co. now has bulk stations on the east and west sides of Erie, according to John W. Craig, partner.

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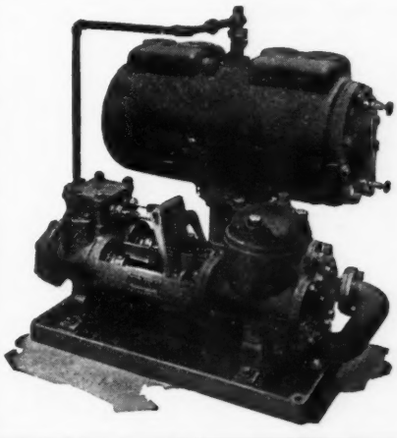

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Better Equipment and Improved Oil Field Appliances Utilized

By Harry L. Edwards
General Superintendent, Humble Oil & Refining Co.
(Read by John R. Suman, Rio Bravo Oil Co., at Tulsa Meeting, A. I. M. E., in Mr. Edwards' Absence)

FAILURE to forge ahead or progress in any line of endeavor; failure to seek more efficient and economical means of accomplishing a set purpose, leads not only to stagnation but actual retrogression. This applies to the oil industry, where speed and economy are essential, probably to a greater degree than in other lines, and any individual or company who adheres to the old methods of drilling for and producing oil is bound to fail.

Thanks to the manufacturer of oil field equipment and his staff of research workers, metallurgists, engineers, etc., we are rapidly leaving behind, as obsolete, old methods of drilling for and producing oil. While in some instances the same old methods are still in use, yet a general, better equipment and improved appliances are being utilized to accomplish the same result in less time and at lower cost.

The manufacturer or producer who fails to keep around him a trained staff of men constantly on the alert for new ideas whereby operations may be speeded up and accomplished with less expense and lost motion, will fail to keep apace of his competitor, and if his venture does not result in complete failure, only mediocre success will be attained.

How Ideas Materialize

PROBABLY 50 per cent of the new ideas in equipment originate in the field, but the field men in most cases, through lack of scientific training and his limited knowledge of metals and alloys, is unable to carry the idea through to a satisfactory conclusion. He must, therefore, call upon the engineer or metallurgist; together they work out their problems and the idea materializes. Each year sees the production man leaning more and more on the science of geology, metallurgy and engineering.

In the years I have spent in the oil industry, I have seen some remarkable changes in the methods of finding and producing oil. In the days when I was a driller, the geologist visited the well alone with nothing but a hammer and a few books. Now he comes with a staff of men operating seismographs, torsion balances, magnetometers, etc. At first we were skeptical, but they proved themselves by finding new domes and structures with their instruments.

All domes and structures do not produce oil, but I predict that sometime in the future, with the aid of science, man will be able to select those domes and structures that are productive from those that are barren. Think of the enormous saving in drilling costs alone when this is made possible.

Drilling Problems Increase

TO obtain oil or gas it is necessary to drill a well, and each year sees this operation become more and more of a problem. Wells are now being drilled to depths unheard of a few years ago. Wells in North Texas are producing at depths below 4000 feet, and in California, there is a well now drilling below 8000 feet. The deepest well drilled by cable tools, that we have record of, was drilled to a depth of 7756 feet.

In the future wells 10,000 feet deep will not be uncommon. The drilling of wells to twice the depth in half the time required in the early days is made possible only by the use of better equipment combined with better knowledge and methods of operating.

The greatest improvements have been made in rotary equipment, whereas cable tools are today practically the same as when Captain Drake drilled his first well in Pennsylvania. Possibly no better comparison of the progress made can be had than that of the equipment used in drilling the first field at Corsicana and that used in drilling the present deep field.

The first wells were drilled to a depth of 1500 to 1600 feet using 12 inch rotaries, 3 inch shafts and small drawworks with single speed, 35 H. P. boilers and 9 x 10 single engines.

At that time they had no grief stems, tool joints, drive bushings, or any of the essentials that today make up the equipment of any up-to-date contractor. Instead they had grip rings, casing for drill pipe, small pumps, and in short, an outfit so unsuitable that a producer of today would hesitate to use it in drilling a shallow water well.

Compare this outfit, if you will, with the modern equipment used today in Central Texas—make-and-break 20 inch rotaries, 6 inch drill stem, 51 foot grief stem, tool joints, 7 inch drawworks with three speeds, 3 100 H. P. boilers, twin engines and large pumps.

Rotary Replacing Cable Tools

THE rotary is rapidly replacing cable tools as a means for drilling. This is accounted for by the fact that the rotary usually makes better time, and less casing is necessary. In most wells drilled with a rotary, 400 to 500 feet of surface casing is set and the next and last string set and cemented on the producing horizon, whereas if the same well were drilled with cable tools six to seven strings of casing would be necessary on account of the inability of the cable tools to cope with Cavey formations.

As a cable tool driller it is hard to admit that the rotary is replacing cable tools. Nevertheless, it is a fact. Our big argument against the use of rotary was its tendency to pass up oil bearing formations and its inability to drill hard formations. Now with the use of improved core barrels and rock bits these objections have been totally removed.

Derricks used in drilling the first wells in North Texas were flimsy affairs, built with 2 x 6 legs, 1½ x 12 girts and braces on the first section, and 1 x 12 on the other sections. The next derricks were built with 2 x 8 legs, 1½ x 12 girts and braces on the first three sections with 1 x 12 on the other sections. This was some improvement.

The next derricks were of the type used in North Texas during the Ranger and Breckenridge days. These derricks were 84 feet high, had 2 x 12 legs, 2 x 12 girts and braces, were sway-braced sometimes both inside and out and strengthened in every way possible to handle the heavy loads of casing. This perhaps was the best derrick it is possible to build with wood.

Wooden Derricks Replaced

LUMBER and freight rates being high, our attention was next centered on the steel derrick. There are several types of this derrick on the market, one of which is the tubular derrick. This derrick is 81 feet high for cable tools and 112 feet to 123 feet for rotary. It has 3 inch legs, 1½ and 2 inch girts and braces and 4 inch pipe for relegs, which strengthen the derrick for drilling purposes. After the well is drilled the relegs are removed and sent to the next drilling well, leaving a light derrick for pumping and cleaning out, thus reducing the investment.

Another type of derrick used in North and Central Texas is the angle iron type. This comes either galvanized or painted and is 81 feet to 123 feet high. The legs are 4½ x 4½ x ⅜ inches on the first two sections and 4 x 4 x ⅜ inches on the other sections. The re-

legs are put on from the outside and are 4 x 4 x ⅜ inches. These steel derricks will stand a load of approximately 250,000 pounds. This makes them adequate for all our needs.

During all the time wooden derricks were used we were troubled with loose keys, bad timbers, etc., and in drilling it was hard to keep material together. This meant loss of time in drilling, and after the well was put on the pump, loss in production.

Steel derrick manufacturers then brought out the all-steel standard rig. This was a step in the right direction. Steel beams, steel sampson posts, jack posts, main sills, sub-sills — all steel; steel band wheels, bull wheels and calf wheels. This all-steel derrick and standard rig is the acme of perfection. In case of a dry hole everything can be salvaged.

Several types of all-steel standard rigs have been developed. We have today sampson posts and jack posts made from casing and set on concrete. One company manufactures a steel "A" frame sampson post and jack post. We are now drilling with one of these outfits at a depth of 3300 feet and find it to meet all requirements.

The extra cost of an all-steel outfit over wood is approximately $750. You have seen the tendency toward steel and the field it opens up for the steel manufacturer and the metallurgist. It will not be many years before the wooden derrick will be a curiosity.

Heavy Duty Engines

THE first type of engine used for cable tool and rotary drilling was 15 H. P., 9 x 10 open type engine. We now use 13 x 14 enclosed type with balanced crank shaft. In rotary drilling enclosed type 12 x 12 twin engine is used.

Drawworks are now made of cast steel, with three speeds, wide brakes and large drums. Some are even water cooled. The posts are braced by 4 inch pipe with a coupling having right and left threads.

The collapsible bit has been tried on several wells in Central Texas and has proven very successful. We drilled one well 3000 feet in eight days with this bit. This bit, I am sure, will eventually replace the old-style fishtail bit. One great advantage it has over other bits is it is not necessary to pull the drill stem to put on a sharp bit.

The tool joints used with this bit have a large opening to allow the bit to pass through and should it be necessary to pull the drill stem the same facilities are available as with the old method.

Wire lines are much better today than they formerly were. The manufacturers and metallurgists have put in much thought on this particular article. In one instance we had a well where the water was so bad the life of the wire line was only about a week.

Steel experts were called into conference and they recommended a galvanized line. Their recommendations were followed and we found it to be the best line we had ever used. Since then we have used several of these lines and found them to be much superior to the old lines.

Fluid Handled in Pumping

PUMPING equipment has been improved even more than drilling equipment. This is due to the fact that in North and Central Texas it is necessary to handle a large amount of fluid. In the Mexia field the ratio is four barrels of water to one of oil, Wortham ten to one and Powell four to one. Therefore, pumping equipment must necessarily be of the best.

As this water gradually forces the oil through the sand it brings fine floating sand with it until it is impossible to pump with the regular barrel using cups. This makes it necessary to use a plunger type barrel. This barrel has cast iron liners and a highly polished steel plunger. As the liners wear, larger plungers are used.

Another type is the fluid packed pump. With this pump more clearance can be had between the liner and plunger, and, consequently, there is less danger of the plunger sticking. With these pumps, in wells where it is necessary to handle a great amount of fluid, an oversize standing valve is used. This valve is placed directly below the barrel. When using 2 inch tubing a 2½ inch valve is used, and with 2½ inch tubing a 3 inch valve. By the use of an oversize valve we are assured of the barrel filling with each upward stroke, thus eliminating gas pockets, pounding and much rod trouble.

We are now using an improved traveling valve. With the old style valve the cups were put on from the bottom and kept in place with a lock washer and cotter key. If these came loose all the rings and cups were left in the barrel, making it necessary to pull the tubing. With the new type valve the lock nut is put on top and the bottom made solid. If the lock nut becomes loose the cups and rings cannot come off and everything can be fished out together.

Rods of Best Steel

RODS today are made of the best steel and represent the life work of high class manufacturers and metallurgists, who maintain elaborate laboratories and testing machines, electrically controlled furnaces, and every device known that goes to make up a better rod. Copper is being added to tubular goods to resist the chemical action of bad water.

The old-style stuffing box was continually leaking and giving trouble. This has been eliminated by the new types now on the market.

With the encroachment of water it becomes necessary to pump with longer stroke and slower motion. Several methods have been put into operation to get the desired results.

The first of these was the seven hole crank. With this crank it was possible to get a 6 foot stroke, but it required a larger motor or gas engine and was so hard on equipment that reduction gears were next resorted to. These were for either chain or belt drive.

Next came the Lufkin pumping unit, which was the forerunner of the gear driven type. This unit has worm drive and a counterbalanced crank. It is very efficient.

Several gears of the herringbone type are now on the market. Some of these gears have roller bearings and it is possible to change the speed ratio by changing the two smaller gears. With all the gear units it is necessary to pull rods and tubing with either a tractor and hoist or a small drawworks. In case electricity is not available these units can be driven with a multi-cylinder gasoline engine.

Use of Electricity Grows

THE tendency in the last few years has been to use electricity for motive power whenever possible. Many articles have been written about the respective merits of the electric motor versus the gas engine for pumping, but our own experience has shown us that the electric motor is best where an adequate supply of electricity is available.

Our experience has shown less off-time on wells driven by electricity than those where gas engine was used for motive power. This tendency toward electricity has forced the gas engine manufacturer to make a better product.

The first gas engines were of the open type with balanced flywheel. We now have enclosed engines with balanced crankshafts. Probably 50 per cent of the off-time with gas engines is due to the clutch. The early clutch had the clutch shoes on the outside, gears were open and there was no positive oiling system. The new clutch has gears enclosed, running in a bath of oil, and the clutch can be tightened or loosened with a single adjustment.

Until that time arrives when gas or air lifts or some other method is evolved to take the place of the present day method of pumping oil, we must be content with the equipment and methods now in use, with improvements from time to time.

Producing fields are being depleted year by year and more economic methods of recovering the maximum amount of oil must be found if we hope to continue. This opens a vast field for the engineer, and the possibilities before him today in the oil industry are inconceivable.

More improvements may be expected in the next ten years as more thought and study is being given to the drilling of wells and production of oil than ever before in the history of the oil industry.

GRINNELL, IA.—G. Dillon has purchased a service station formerly owned by the Grinnell Oil Co. Mr. Dillon is handling Home Oil Co. products, reports William Kaloupek, owner of the latter company.

Umpire Holds Seminole Production To 73 Per Cent of Capacity

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Nov. 13

RAY M. COLLINS, selected by the operators' committee to act as umpire in the Seminole area while it is under the proration and shut-down agreement, probably was the busiest man in Oklahoma the last week.

Arriving at the field Nov. 7, he started work the next day, and immediately faced the necessity of deciding a thousand and one problems incident to his new job.

He established headquarters in the office building of the Independent Oil & Gas Co., at its camp in the SW SW of 23-9-6, but is now having a house built on the Pure Oil Co.'s Strothers lease in the SW of 26, where he will be more centrally located in the big production areas that have given the most trouble from oil congestion.

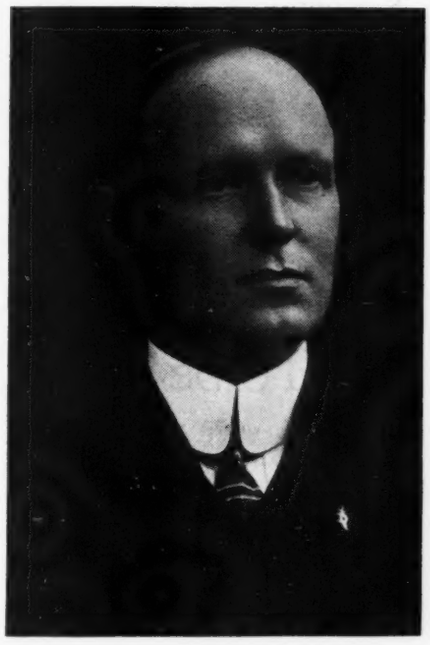
The umpire's personal staff consists of a secretary and five combination scouts and gaugers whose duty it is to check up on all phases of operation in the field for Mr. Collins. In addition, all other gaugers in the field are working under his supervision, and each morning all of them report to him before starting their day's work. The men working directly on his staff were furnished from the personnel of companies operating in the field and will go back on their regular jobs as soon as the proration period is over.

E. B. Reeser, president of the Barnsdall Corp., chairman of the operator's committee, and the moving spirit in bringing about the agreement among the operators to shut down and prorate runs, states that all executives with whom he has talked express themselves as well satisfied with the way the proration regime has been started. Production men out in the field, however, who are responsible for their companies' production, are chafing at the bit in being held back from developing their properties in the usual manner to get as much oil as possible out in the quickest way.

A Hard Man To Catch

THE first few days of the umpire's reign caused considerable confusion, as superintendents and foremen did not know exactly what they could do and what they could not do under the new order of things. As a result, anywhere from one to a dozen production men were scouting the field most of the time trying to find the umpire and finding him hard to catch.

Seminole production undoubtedly has been held down since the proration agreement went into effect, and there has been no recurrence of the waste of oil which precipitated intervention of the state Corporation Commission and hastened harmonious action on the part of the producers. The past week saw the completion of two big wells in the field, both being on "permitted" locations, but there has not been as large an increase in total production as the size of these wells would indicate. In other words, they and other wells have been pinched in to provide for this additional production. Latest figures on the field's production place it at 110,100 barrels from 47 wells, of which 32 Wilcox sand wells accounted for 100,665 barrels. This compares with a daily average of 106,500 barrels over the week and 112,560 barrels the preceding week.



Ray M. Collins

Of the present output of 110,100 barrels, the pipe lines moved out 104,600 barrels, the balance finding room in stock or storage tanks in the field. Pipe line runs were divided as follows:

Pipe Line Co.	Runs Nov. 12
Oklahoma (Carter)	25,400
Prairie	29,400
Sinclair	15,300
Gulf	20,900
Magnolia	1,560
Tidal	5,150
Independent	6,890
Total	104,600

The figures above include about 3500 barrels moved out in tank cars by the Independent Oil & Gas Co. and a certain quantity similarly handled by the Tidal Oil Co., which recently built a loading rack for the purpose. It is estimated that total pipe line capacity of the field is now around 120,000 barrels and is increasing as construction projects are completed.

Most wells in the field are flowing against back pressures running all the way from two or three pounds to as high as 55 pounds, this pressure usually being applied at the regulating valve on the oil and gas separators. In some instances this has caused wells to stop flowing, and operators have been allowed in such cases to run the swab until the well again flows, although this cannot be done without express permission of the umpire, and he must assure himself that the well actually has ceased to flow. In general the regulations imposed by the shut-down agreement prohibit any form of agitation, drilling, swabbing, or running tools or even bailer into the hole for the purpose of increasing production.

When the writer was in Seminole the past week, it apparently was the umpire's intention to run about 80 per cent of the field's production, evidently on the theory that was the excess of production over pipe line and storage facilities. On Nov. 10 he had given out figures showing what he estimated the field's production to be, followed by other figures purporting to show what the proration would be on each property and how much oil would be run. In this tabulation, he showed the field's output as 102,730 barrels, while the "will run" column showed 86,328 barrels or slightly over 80 per cent of the total.

Why he felt it necessary to cut the field's runs down to 86,000 barrels when pipe lines actually can move 104,600 barrels and have moved out more, is not known. However, as far as can be ascertained, the runs were not reduced to any such figure as that indicated, as all big companies' reports each day have shown the field producing around 105,000 barrels. These reports are supposed to represent actual production, taking into consideration wells which have been pinched in. In some cases, the umpire's figures show permitted runs in excess of production, this being due to congestion on certain properties, making it necessary to pump oil out of storage tanks for relief. Follow-

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We now serve these firms and scores of others

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Quotations submitted in response to inquiries establish the fairness of the Robertson price.

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Springfield, Ohio

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ing is the tabulation of the field for Nov. 10, according to the umpire:

Company	Est. Prod'n	Prorated Prod'n
Amerada	2,780	2,300
Barnsdall	3,230	3,000
Carter	1,770	1,300
Gypsy	9,207	8,828
Independent	14,752	9,000
I. T. I. O.	13,654	11,400
Mid-Continent	8,180	6,880
Prairie	610	620
Pure	12,714	17,000
Searight	4,425	3,500
Sinclair	11,285	8,500
Superior	6,299	5,000
Tidal	13,825	9,000
Total	102,731	86,328

Production shown in the above table in the case of most companies is pinched in production, in other words, their output probably could be substantially increased if back-pressures were relieved and the wells allowed to flow wide open.

It is apparently the umpire's plan to pinch the wells down to a certain figure and then prorate the runs from that basis, instead of taking the field's potential production as a basis and prorating from that down to the pipe line capacity. It is safe to assume that Seminole could be making at least 150,000 barrels today if all restrictions could be removed. Putting effective pipe line capacity at 110,000 barrels, it can be stated that the field is producing at about 73 per cent of its full potential output at the moment.

Spindletop's Oil Possibilities To be Tested to 10,000 Ft.

HOUSTON, Nov. 13

SPINDLETOP'S oil possibilities are to be plumbed to 10,000 feet—even further if it is possible to send the drill down.

The Yount-Lee Oil Co. is to begin a new test, according to T. F. Rothwell, vice president and superintendent of field operations, with headquarters at Beaumont, using machinery and equipment designed to go to 10,000 feet at least, in search of lower oil sands.

Special heavy duty equipment was ordered for the new deep offside test, which will be known as the No. 15 Yount-Lee fee well. The location is on a 10-acre tract near the center of the intensively drilled flank development west of Hildebrant road.

The test is especially intended to test possibilities below the three deep zones already proved at 2750-3325, 4100-4300 and 5027 feet, the last being the corrected measurement on the recently completed No. 9 well brought in by the Yount-Lee interests for pinched-in initial production of roundly 7000 barrels.

It is proposed to set about 1500 feet of heavy surface casing in the new deep test and to start coring formations penetrated after reaching a depth of about 4000 feet. The finding of another producing zone at any depth below 5000 feet probably would result in the well being completed at the penetration level and the eventual drilling of another deep hole to test possibilities still deeper.

Industry's Biggest Drawworks

THE Boykin Machine & Supply Co., which built the rotary drawworks for the Yount-Lee deep test, made the largest piece of equipment of its kind ever turned out in oil industry manufacturing, said E. L. Boykin of the company.

As an example of the size and capacity of the rig it may be mentioned that the cable spool is 50 inches in diameter in comparison with an average of 24 inches on usual Gulf Coastal equipment; the brake flange is 42 inches in diameter as compared with the usual 16 inch flange.

The drawworks, which alone cost $3500, is set on a frame built of 10-inch steel "H" beams; the rig is equipped with extra heavy crown and traveling blocks and a 23-inch rotary of the "make and break" type.

Interchangeable bearing boxes are used on the drawworks and the brake flanges utilize an air-cooling process of the Boykin company intended to provide better service than the water-cooling system.

Power for drilling will be supplied by steam propelled twin engines of even greater size than the heavy duty installations ordinarily used by the Yount-Lee interests in Spindletop deep well drilling.

Occurrence of Oil Zones

A NUMBER of theories exist with regard to the deep oil zones penetrated in offside drilling on the flanks of the Spindletop dome. It is believed by some of the best informed geologists, however, that the forces which intruded the salt dome upward through thousands of feet of relatively recently formations did so under conditions which brought about buckling of the beds on the fairly steep southwest flank of the plug.

The buckling is believed to have created separate oil zones, with shale and other formations interbedded between them, notwithstanding that the Spindletop deep sands originally were in one body which was "dragged up" offside the flank, or flanks of the dome as now constituted.

If the foregoing hypothesis is proved to be true oil may be found in lower zones than have been as yet penetrated down to the depth of the lowermost horizon affected by the "buckling" mentioned.

The original source of Spindletop caprock oil exploited since the history-making days of 1901 undoubtedly was through its migration to the top of the dome from flank horizons. Now if the lowermost zone of flank sands can be tapped with the drill the "Mother Pool" of Spindletop oil will have been found.

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DISSOLVED ACETYLENE

Unit Development Promises Greater Yield From Dominguez Pool

By Lester C. Uren
Professor of Petroleum Engineering, University of California, Berkeley.

Article 1

When the Federal Oil Conservation Board stamped Dominguez as a "model" oil field, in drilling and production methods resulting from voluntary cooperation of operators there, National Petroleum News commissioned Prof. Lester C. Uren to visit the field, study what had been done and write a series of articles for its readers. The accompanying is the first of these articles.

FOR a proper understanding of the cooperative features of the development program followed in the Dominguez Field, it will be necessary to briefly review its early history, and also, to acquaint the reader with the principal geological and physical factors which have so largely determined the method of exploitation adopted.

The Dominguez Field is situated on a topographic prominence near the western rim of the Los Angeles Basin of Southern California (See Figure 1). In this region, the surface topography is to some extent an expression of the underground structure, and for this reason, Dominguez Hill has for many years been looked upon by geologists as a favorable site for test wells, some of which were drilled as early as 1916. The early tests however, were either slightly "off structure," or were not drilled to sufficient depth, and it was not until September, 1923, that the discovery well was completed on what is known as the Callender Lease, by the Union Oil Co. of California. Prior to this time, the nearby Long Beach Field had been discovered and early development had disclosed its potentialities. The obvious similarity between conditions at Long Beach and Dominguez, brought the early realization that Callender No. 1 heralded the advent of a new California field of major importance.

Fortunately, the land containing what promised to be the more productive portion of the field, was held in comparatively large tracts, so that from the start, conditions were favorable for conservative development. A large part of the acreage near the crest of the structure was included within the Dominguez estate, one of California's early Spanish grants, which had however, been partially subdivided prior to the discovery of oil.

Among those who sought leases from the Dominguez estate, both the Union Oil Co. of California and the Shell Co. of California were regarded with favor by those having authority to convey titles. It is said that even at this stage, the vision of an entire oil field that should be free from the destructive effects of competition among opposing producers, had been conceived by H. W. O'Melveny, attorney for the Dominguez estate, and his far-sighted vision in fixing the terms of the leases granted, is in no small measure responsible for their admirable economic exploitation. The Union Oil Co. of California had secured control of several large tracts before the completion of the discovery well, and Mr. O'Melveny's foresight is again exhibited in including the Union Oil Co. with the Shell Co. of California in an undivided interest in the Reyes property, which includes a large acreage along the very crest of the structure.

Other tracts were also taken under lease by the Shell Co., and further development soon indicated that the two companies—the Shell and the Union—were in possession of the greater part of the productive area of the field. However, four other companies, the Marland Oil Co. of California, the Associated Oil Co., the United Oil Co. and the General Petroleum Corp. secured control of comparatively small properties near the edge of the productive area.

Limitation of Depth of Penetration and Spacing of Wells By Cooperative Agreement

WITH the entire area of the field in the hands of a few of the larger and more conservative California companies, conditions were ideal for development along cooperative lines. Officials of the Shell and Union companies, the largest land owners, were alive to the possibilities of this, and soon reached a cooperative agreement covering the manner in which the field should be developed; an agreement which was later extended to cover control of production. This is an unwritten agreement, but has been rigidly adhered to by both parties. Before development had progressed far, the three other companies operating on relatively small tracts within the productive area, were also induced to conform with the principal terms of the cooperative agreement, thus bringing the entire producing structure under some measure of unified control.

One of the decisions reached under the cooperative agreement during the early period of development, was the adoption of a uniform spacing interval of 610 feet for all wells drilled. The spacing interval adopted was one which experience in similar fields in the Los Angeles Basin had shown to be conservative and productive of a moderate gas-pressure decline. The precise interval, however, was fixed by dividing the length of a property boundary by the number of wells considered appropriate. Later, this same spacing was agreed upon for interior locations. All wells

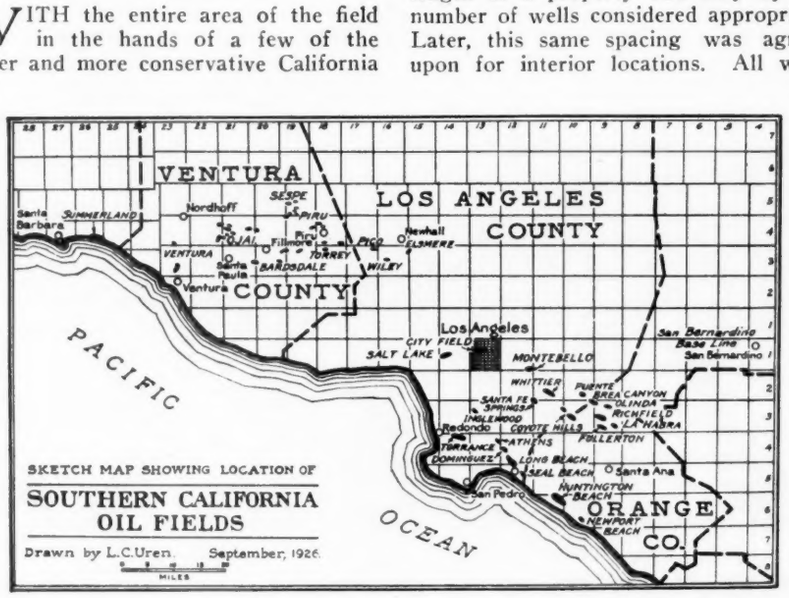

Figure 1. Sketch map of Southern California, showing location of Dominguez and neighboring oil fields

More Oil at Lower Average Unit Cost

"An unbiased observer cannot fail to be impressed with what has been accomplished by operators in the Dominguez Field, particularly in perfecting methods of oil recovery and in gas conservation, which promises to greatly increase the ultimate oil extraction.

"Conditions in this field are the more noticeable because of their proximity to the Long Beach Field, which offers as good an example as one could find of the evils of over-drilling induced by highly competitive exploitation of small and independently owned tracts.

"As a result of cooperative enterprise, operators in Dominguez will in all probability be enabled to produce a greater quantity of oil than would otherwise be possible and at a materially lower average unit cost. Oil, probably present in deeper zones, is being conserved until it can most profitably be produced.

"The whole picture is one of systematic, orderly development and exploitation, illustrative of the best methods known to present-day oil production technologists."

Lester C. Uren.

in the field are thus arranged in rectangular pattern, approximately 610 feet apart.

Another decision of far-reaching importance during the early stages of development, was that all wells drilled should penetrate not more than 400-feet below the top of the productive zone. At this time, several other Los Angeles Basin fields were in flush production, and it was realized that some limitation on output would be beneficial, not only to the industry as a whole, but also from the standpoint of ultimate profits to the companies directly concerned. Experience in the near-by fields had also indicated the probability of a succession of commercial sands in two or more zones, and in order to conserve the lower horizons and prevent early gas drainage, the 400-foot penetration rule was conceived and agreed upon. Accordingly, drilling was discontinued in each well when a depth of 400-feet below the top of the oil zone was reached, even though still in oil sand. The total thickness of the present Callender Zone is therefore unknown.

Possibility of Deeper Productive Oil Zones

THE existence of a lower zone or zones is also uncertain, though it is considered probable from the evidence of nearly all other Los Angeles Basin fields, in which two and sometimes three well-defined oil zones have been found. Correlation of the logs of wells drilled by the General Petroleum Corp. in the extreme north-west end of the field, with those drilled elsewhere, indicate that they may have encountered edge-water in the Callender Zone and derive their production from a lower horizon. Their production has been small, however, and they are now idle.

In this same vicinity, the Union Oil Co. also drilled its Callender No. 12 to a greater depth than other producing wells to the south and east. A "shut-off" was made at 4671 feet, which is stratigraphically lower than the present producing horizon, and the well was completed with an initial production of 800 barrels of 31° gravity oil, from about 130 feet of sand. At the opposite end of the field, however, the Marland Oil Co. drilled its Dominguez 1 to a depth of 6500 feet without finding productive horizons below the Callender Zone. This well is about two miles from Callender 12. It may be concluded that, if deeper zones exist, they will be found to the north and west rather than toward the south-east.

ACKNOWLEDGMENTS

The author has personally had no part in the work that has been done in the Dominguez Field. The impressions and data presented are merely those of a casual visitor to the field, who has enjoyed the privilege of first-hand observation and consultation with those who have in large part been responsible for the results attained. In this connection, the writer wishes to particularly acknowledge the hearty cooperation of Mr. Wm. Reinhardt, and Mr. T. E. Swigart, production manager and production engineer, respectively, of the Shell Co. of California. Among others, the writer is also indebted to Messrs. R. D. Bush and J. B. Case, of the Department of Oil and Gas of the California State Mining Bureau, for certain of the data used in the preparation of this article.

Extent of Present Development and Drilling Conditions

A TOTAL of 79 productive oil wells have been drilled in the Dominguez Field up to the present time. The field map reproduced in Figure 2, shows the extent of development in mid-September, 1926. On this map structure contours are also sketched, indicating the depth and form of the top surface of the productive oil zone. The structure is shown to be an elongated dome, approximately three times as long as it is wide. Dips along the major axis range from 4 to 7-degrees, while in the direction of the minor axis, the dip varies from 20 to 30-degrees. Figure 3 is a reproduction of a recent aeroplane photograph of the field, which shows to advantage the relatively wide and uniform spacing of the wells.

Near the crest of the structure, the wells penetrate the productive zone at a depth of about 3800 feet below the surface, and attain a total depth of 4200-feet. Edge wells are about 300-feet deeper. The sediments penetrated by the wells are for the most part soft, unconsolidated beds of Recent, Pleistocene and Pliocene age. Eaton[1] has described the sections as comprising 50 to 250-feet of Recent surface gravels, from 300 to 500-feet of San Pedro (Pliestocene) sands and gravels, 1200-feet of Saugus (Upper Pliocene and Lower Pleistocene) sands, gravels and blue clays, and at least 3000-feet of Pico (Pliocene) brown, blue and gray sandy and sticky shales with inter-bedded sand-stones. The Puente formation, of Miocene age, which underlies the Pico, is known to

[1]Eaton, J. E., Petroleum World, Los Angeles, California, issue of September, 1926, pages 70-72 and 116.

FOSTER

The TUBE STILLS

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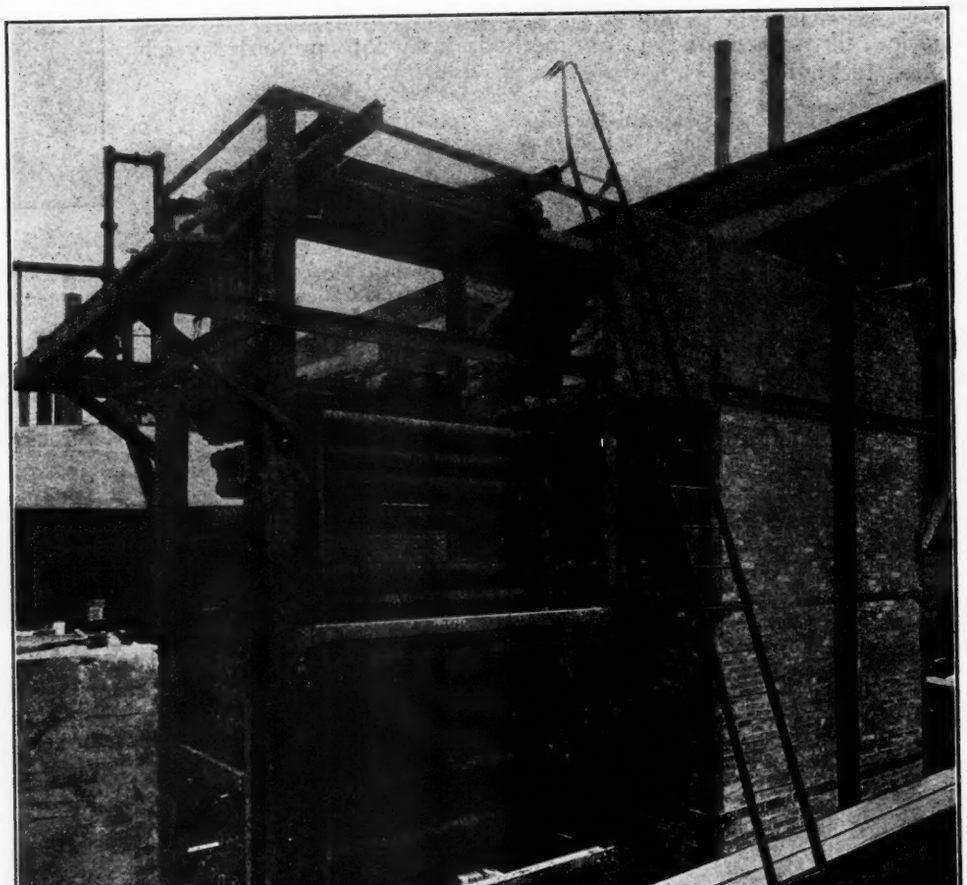

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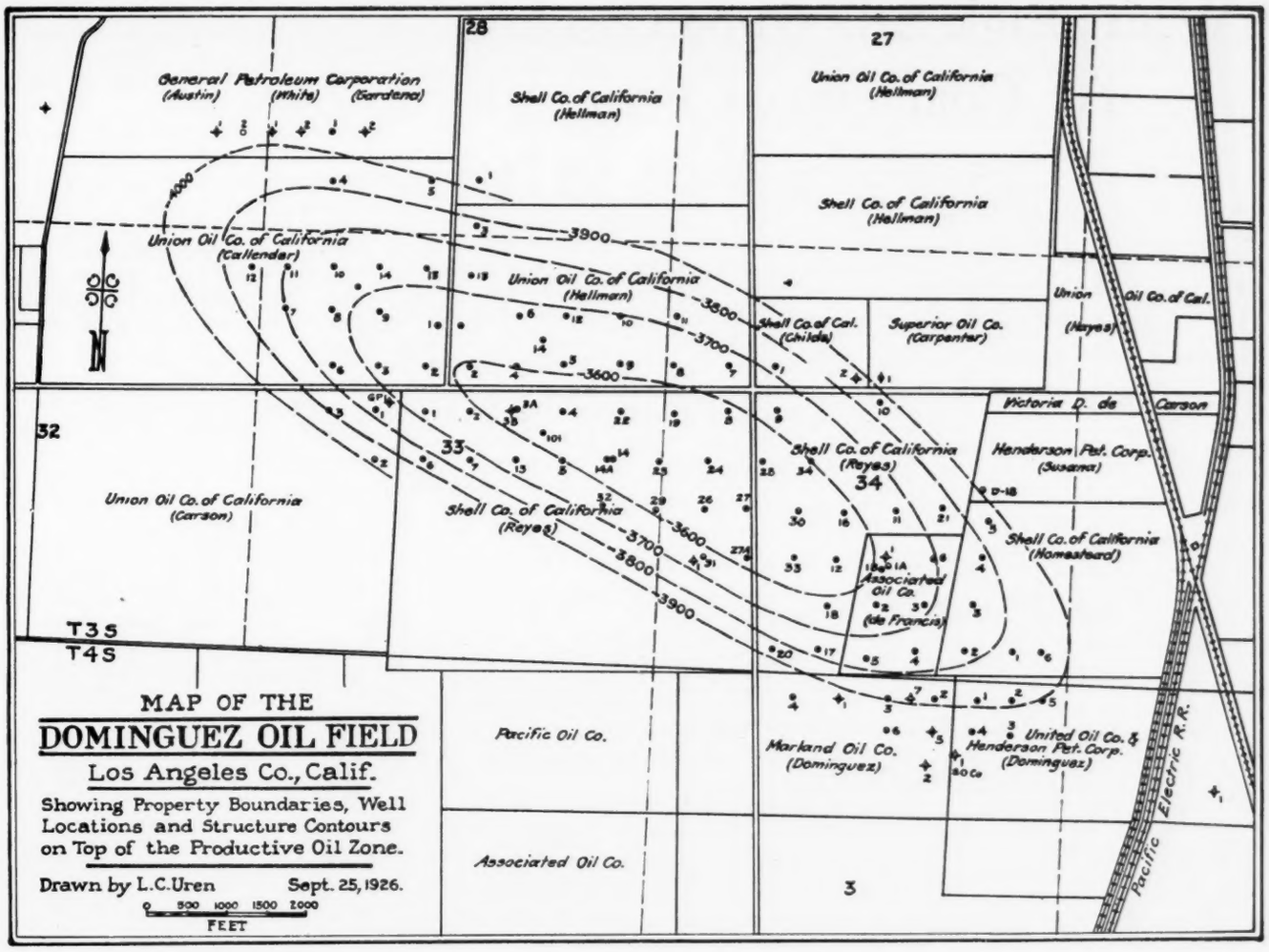
General Petroleum Corporation (Austin) (White) (Gardena)
Shell Co. of California (Hellman)
Union Oil Co. of California (Hellman)
Shell Co. of California (Hellman)
Union Oil Co. of California (Callender)
Union Oil Co. of California (Hellman)
Shell Co. of Cal. (Childs)
Superior Oil Co. (Carpenter)
Union Oil Co. of Cal. (Hayes)
Victoria D. de Carson
Shell Co. of California (Reyes)
Henderson Pet. Corp. (Susana)
Union Oil Co. of California (Carson)
Shell Co. of California (Reyes)
Shell Co. of California (Homestead)
Associated Oil Co. (de Francis)
Pacific Oil Co.
Marland Oil Co. (Dominguez)
United Oil Co. & Henderson Pet. Corp. (Dominguez)
Associated Oil Co.
Pacific Electric R.R.
28
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T3S
T4S
MAP OF THE
DOMINGUEZ OIL FIELD
Los Angeles Co., Calif.
Showing Property Boundaries, Well Locations and Structure Contours on Top of the Productive Oil Zone.
Drawn by L.C.Uren
Sept. 25, 1926.
0 500 1000 1500 2000
FEET

Figure 2.

contain extensive bodies of diatomaceous shales, which are thought to be the source of the oil. The logs of the rotary-drilled wells show so little variation in the character of the sediments, that definite correlation is difficult, and there cannot be said to be any well-defined stratigraphic markers.

No unusual features characterized the drilling operations in this field. With the rotary equipment, which has been exclusively used, the drilling time for the full depth of a well, to the bottom of the 400-foot zone of penetration, and including time for "rigging up" and cementing, is about three months. Wells are cased with three strings of pipe, a typical well near the crest of the structure being cased with 1000-feet of 15½-inch conductor pipe, 3800-feet of 10-inch seamless casing and 4200-feet of 8¼-inch seamless casing, the lower 400-feet of which is screen pipe. In other instances, a 15½-inch-8¼-inch-6¼-inch casing program has been followed. The larger diameter oil string is considered preferable in view of the probable need at some future time, to deepen the wells to a lower productive zone. Both of the smaller strings of casing are customarily cemented.

High gas pressures were encountered during the drilling in of most of the earlier wells. It is reported that one driller observed 1600-pounds per square inch on the pressure gauge "on his way out," and closed-in pressures of 1300-pounds were recorded in several instances. Two high-pressure gas zones above the oil zone have been logged in many of the wells and probably penetrated by all. They have, however, been successfully "mudded off" behind the water-strings of all of the existing wells. The high pressure of these bodies of over-lying gas was made apparent by several "blow-outs," one of which completely engulfed a rig.

(To be continued in Nov. 24 Issue)

Okla.-Kan. Jobbers View Sinclair Refinery

TULSA, Nov. 13.—A joint meeting of Oklahoma and Kansas jobbers was held at the Dale hotel in Coffeyville, Kans., Nov. 12, with approximately 75 registered. There was a discussion of anti-knock gasoline and talks on co-operation and lubrication.

A. C. Carpenter, Ottawa, Kan., president of the Kansas Oil Men's Association, presided. R. Y. Kennedy, president of the Coffeyville chamber of commerce welcomed the oil men to the city.

L. A. Warren of Enid, Okla., former president of the Oklahoma Oil Jobbers' Association, spoke on "The Value of Co-Operation." He was followed by E. W. Fawcett of the Independent Lubricating Co. of Topeka, who discussed "Relation of Viscosity to Pressure."

Following luncheon, the session was resumed with J. R. Weldon, of Enid, president of the Oklahoma Oil Jobbers' Association in the chair. Chief Chemist Gardner of the Sinclair Refining Co. at Coffeyville plant, gave a semi-technical talk on anti-knock gasoline, its value, how it is made and the relationship between various crudes as to their anti-knock qualities.

An inspection trip through the Sinclair plant was made in the afternoon. A banquet was held in the evening with R. G. Cunningham of Miami, Okla., as toastmaster. The speaker was M. W. Krieger of Coffeyville, manager of the chamber of commerce, who talked on "Organization."

CINCINNATI, O.—The newly opened filling station of the Tresler Oil Co. is reported to be "going good" here.

White Eagle Sells 60-62 Gasoline At Competitive Price

Staff Special
TULSA, Nov. 15

TWO important Independent refiners in the Mid-Continent with large distributing systems in the Middle West announced a new gasoline Nov. 11. The White Eagle Oil & Refining Co. as well as the Marland Refining Co. began to sell 60 gravity gasoline at the regular competitive price through its stations.

The Marland Refining Co. announced its new motor fuel as "Marland Pressure Gasoline." The White Eagle will call its new product "Balanced 60 Gasoline." Details of Marland's campaign of introduction is published elsewhere in this issue.

Aside from the gravity guarantee the White Eagle has made no announcement of the specifications of its new fuel. In full page advertisements the company announced that the new fuel is one that ordinarily sells for a premium, that it is of more value because of its quick starting qualities, decreased carbon and crankcase dilution. No announcement was made regarding the anti-knock qualities or whether it includes some cracked gasoline.

Marland, on the other hand, announces that its new gasoline is a product of its three cracking processes, the Fleming, Cross and Dubbs. It claims seven points of superiority: no knock, quick start, more power, more miles, less crankcase dilution, less carbon and no extra cost. The new Marland gasoline will have an average specification of 60-62 gravity, 100 to 105 degrees F. initial boiling point and 400 to 410 degrees F. end point.

Sell to Contract Customers

WHITE Eagle will sell the new gasoline to regular contract customers when suitable arrangements are made and Marland will sell to jobbers who sell their goods under the Marland trademark.

Both refiners have large station systems of their own. The White Eagle has more than 500 stations in 10 states and Marland has more than 400 stations in substantially the same area.

Marland has a 35,000-barrel refinery at Ponca City and the White Eagle has refineries at Fort Worth, Texas, Augusta, Kan., and Casper, Wyo., with a combined capacity of about 15,000 barrels a day.

It has been expected for some time that some of the important Independents in the Mid-Continent would meet the competition of The Texas Co.'s "New and Better Gasoline" launched last May with a similar grade of motor fuel to be sold at the regular filling station price.

When the Texas Co. began its campaign last spring and increased its gallonage so greatly that it was forced into the open market several times to buy 60-62 gasoline, refiners began to study competitive situation to determine whether the new Texas Co. specifications for gasoline might possibly become the standard for gasoline instead of 58-60 U. S. Motor.

With the White Eagle and Marland both pushing large advertising campaigns and the Texas Co. continuing its vigorous sales policy it appears probable that in the coming winter more and more Independent jobbers will buy 60-62 gasoline and meet the larger company competition with advertising campaigns of their own.

One refiner in Oklahoma selling entirely to the tank car trade said yesterday that most of his current inquiries are for 60-62 gasoline although the greatest part of his shipments are still of U. S. Motor. He stated that his big customers are sticking to 58-60 while a large number of smaller jobbers are demanding 60-62 gasoline.

Marland Gets Two Wells in Seal Beach Field

LOS ANGELES, Nov. 12.—The Marland Oil Co. of California has brought in two new wells at the new Seal Beach field with a combined daily average flush production of about 3500 barrels, but killed both wells to drill them deeper for a hoped greater production.

Marland's No. 4 Bixby came in for 2060 barrels of 22.8 gravity clean oil at 4435 feet after a perfect water shutoff at 4426 feet, with the drilling tools still in the hole. The well was killed and will be drilled deeper into the sand and an oil string run in before another production test.

Marland Company's No. 3 Bixby came in at 4402 feet for 1500 barrels of clean oil after a perfect water shutoff at 4388 feet, but was also killed to drill deeper. This company's Selover No. 1, slightly more than 1000 feet southwest of No. 4 Bixby, with a narrow tract held by the Standard Oil Co. lying between, found stringers of oil sand mixed with shale between 4650 and 4690 feet, but late last week penetrated a good looking sand a few feet around 4700 feet. This assures the Standard some wells on its tract. This dip in the formation had been predicted by geologists.

Action of the drilling wells at Seal Beach indicate that the field will be producing between 5000 and 7500 barrels of oil before Jan. 1.

The effect of drilling wells so close together in a town lot area began to show up at Huntington Beach a few days ago when the producers in the town lot area fell from about 1000 barrels a well last week to slightly better than 800 barrels a well this week, with several good producers being completed to help stem the tide.

It is thought by those closely watching this new drilling area that the peak will be reached at Huntington Beach in two to three weeks, although late last week there were 92 drilling wells, with 29 rigs soon to start drilling. Forty wells are now producing in the new area, not counting the Standard's Barley Patch wells, except those directly offsetting the townlot area.

The Standard is drilling two wells on the Pacific Electric land lying between the tracks and tide water, one of which is nearly 3000 feet deep. These wells will prove or disprove the theory that the oil sand extends into the Pacific Ocean.

Ventura Avenue furnished two completions last week, but the daily average production of the field only showed a fairly small increase. Between 10 and 15 wells will be completed in this field in the next six or seven weeks and the production of the field can be expected to continue to climb steadily for the next three months at least, but not in leaps and bounds.

Other fields in the state are rather quiet, although new work in the Orange County fields, assisted by the gas lift and other improved production methods, are showing slight gains almost weekly.

Shell To Build Refinery at Dominguez

LOS ANGELES, Nov. 13.—Shell Co. of California has purchased more than 300 acres at Dominguez Hill where it will build a refinery. It is reported that the land purchase price was in the neighborhood of one million.

Shell Co. officials said eight Dubb cracking units and one Trumble distilling unit will be erected presently. It is thought likely that the Shell in time will make the new refinery larger in view of the area of land purchased.

The Shell Co.'s plant at Watson, Los Angeles county, has a daily charging capacity of 50,000 barrels or more. Some months ago an unsuccessful attempt was made to purchase additional land there.

The Shell Co. has a daily production of around 12,000 barrels in the Dominguez field, close to the new refinery site. Long life for the Dominguez wells is predicted.

CHICAGO.—The Leonet Oil Co. expects to be in its new plant here by Dec. 1. A two-story fire proof building has been erected at Fullerton and Hoyne Aves. There are rail spur facilities. Tanks will be installed soon, according to H. R. Heath, of the company.

Trucks on Kelly Kats arrive on time

WHETHER carrying gas and oil over city streets or delivering stores and supplies over muddy roads in the oil fields, trucks equipped with Kelly Kat tires arrive on time. The many difficulties of the road that so often cause delays when ordinary solid truck tires are used, hold no terrors for Kelly Kats. They take hold and push their load steadily forward through soft mud, snow or slush just as long as the engine will function. No matter what the road conditions, the side vents, originated and perfected by Kelly, give these tires a grip on any road surface.

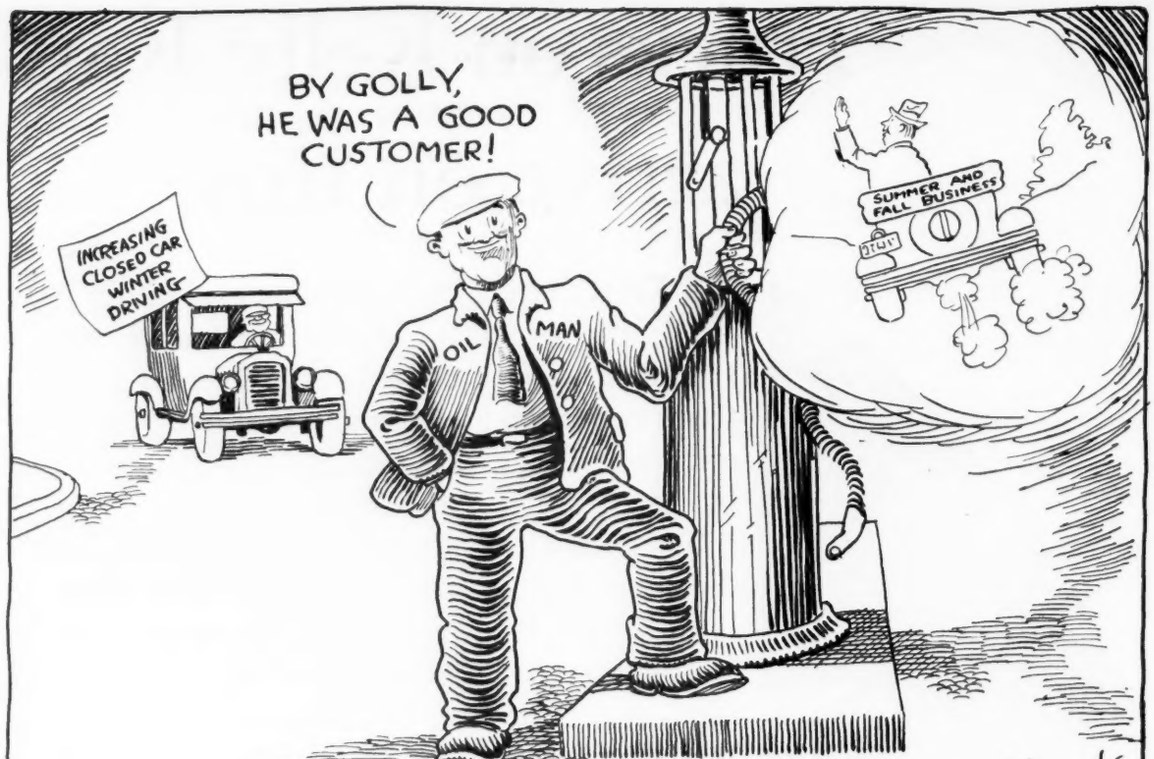
Hard work doesn't harm Kelly Kats. They resist wear and last so long that they bring mileage costs way down below those of the ordinary run of truck tires. This combination of low mileage costs and prompt efficient service makes Kelly Kats unusually economical for the truck owner.

KELLY-SPRINGFIELD TIRE CO.

250 West 57th Street New York, N. Y.

KELLY KATS
TRADE MARK REG.
THE TIRES WITH NINE LIVES

Distributors as well as producers have found that Kelly Kats are economical tires to use. Whether driven over city pavements or rough, muddy roads Kellys will carry their load forward at a cost per mile that is surprisingly low to operators who have been used to the cost of running trucks on ordinary solid tires.



THE OTHER FELLOW WAS ALL RIGHT, BUT SEE WHO'S COMING

Vickers Traffic Manager Resigns

WICHITA, Nov. 13.—George P. Nissen, traffic manager and assistant sales-manager for the Vickers Petroleum Co., has resigned, effective Dec. 15, to become affiliated with the Kent Oil Co. at Norton, Kan.

Mr. Nissen has been with the Vickers company since his resignation as traffic manager for the Sterling Oil Co. Prior to that he was with the state public utilities commission. He has made his home in Wichita since 1918. Mr. Nissen is a charter member of the Wichita Traffic Club, and was president during 1920, and now is chairman of its entertainment committee.

A successor to Mr. Nissen has not been chosen as yet, C. W. Rice, sales manager, said today.

* * *

TULSA, Nov. 13.—Frank Jamison, of Ponca City, was found dead in his garage Nov. 11. It is believed he succumbed to a heart attack.

Mr. Jamison, formerly associate with the Wentz Oil Corp., has recently been a partner in the Mummert Drilling Co., prominent in north-central Oklahoma development. Mrs. Jamison is a sister of J. J. McGraw, president of the Exchange National Bank, Tulsa, and of Henry McGraw, vice-president of the Gypsy Oil Co.

* * *

TULSA.—Walter Daly, of Cleveland, O., president of the Andover (O.) Gas Co. and an independent producer, is spending several days in Tulsa looking over Mid-Continent interests. Mr. Daly is at present operating in the Owensboro, Ky., district. He predicts that an extensive development campaign will be conducted there over the next year.

* * *

TULSA, Nov. 13.—D. L. Newton, president, and W. J. Carmichael, general manager, of the Newton Process Co., Fullerton, Calif., manufacturers of natural gasoline plant equipment, were in Tulsa the past week. They visited nearby fields as the guests of the Hurley Gasoline Co., Mid-Continent sales representatives.

* * *

TULSA, Nov. 15.—Charles E. Brown, vice president of the Warren Petroleum Co., is back in Tulsa after having spent more than six months in Germany. He has been taking a special treatment of baths at Nauheim to recuperate from his illness.

* * *

TULSA, Nov. 13.—The Lincoln Oil Refining Co., Robinson, Ill., is installing a vapor recovery system of the absorption type. Equipment is being furnished by the Newton Process Co. The plant has a capacity of 5000 gallons a day.

* * *

TULSA.—Additional insulated tank cars for service in Oklahoma have been purchased by the Warren Petroleum Co., one of the largest natural gasoline marketing companies in the industry.

* * *

SHREVEPORT.—W. A. Barth, geologist, and Miss Mary Sage Brinkman, of Shreveport, were married Nov. 3. Mr. Barth is in the geological department of the Arkansas Fuel Co.

C. W. Cahoon, Jr. Is Married

WICHITA FALLS, Nov. 13.—C. W. Cahoon, Jr., in charge of the Wichita Falls office of the Carson Petroleum Co., of which his father is president, and Miss Sibyl Kell, daughter of Mr. and Mrs. Frank Kell of Wichita Falls, were married here Nov. 8. The wedding was in the Kell home, followed by a reception at the Country Club. The couple left immediately for New York where on Nov. 13 they sailed for a honeymoon in Europe. The bride's father is a prominent railroad and mill owner.

* * *

TULSA—B. B. Blair and Johnson F. Hill, who were formerly executives of the Waite Phillips Co., have organized the Tulsa Oil Co., with offices in the First National Bank Bldg. Activities will be confined to the purchase of acreage and drilling in Kansas, Oklahoma and Texas, according to Mr. Blair, president.

* * *

DALLAS.—B. Coleman Renick, recently resigned from the U. S. Geological Survey to enter the geological department of the Roxana Petroleum Corp., Dallas offices.

* * *

TULSA, Nov. 13.—H. Cannon, formerly of Shreveport, La., has moved to Tulsa with his family and opened a marketing business. His offices are in the Atco building.

* * *

TULSA.—Phil B. Dolman, consulting geologist, recently moved from Tulsa to San Angelo, Tex., where he has established offices.

The Editors' Viewpoint

National Petroleum News

Wisconsin Applies Poor Economics to Oil

HERE is how a state department of markets, with supervision over the oil business can pick over the oil business and find things that may seem to be wrong with it, when maybe they are not.

This is taken from the Oct. 30th Bulletin of the Wisconsin Department of Markets. This department has been exceptionally fair, for a government department, toward the oil industry. Still, read the department's comment on the market situation in Wisconsin the past season and see if you want all states to take charge of the oil marketing business.

The net effect of any adverse comment by a state department, in a bulletin such as this, is being found guilty by a jury, but without any trial. If the department is extra radical, as most of the LaFollette enterprises have been, or if it is careless with the truth, as most of the LaFollette statements have been, then the supervised industry is up against a decree of death by hanging without any chance to be heard; even when it may be entitled to a gold crown for its service to the public.

Take two points in the following comment on which there always will be a difference of opinion in certain ranges of fact.

What Is a Fair Margin?

WHAT is a fair jobber's gross margin? It may be fairly easy to say it should not be as high as ten cents, but, when it comes to splitting cents, one is venturing where the ice is thin. If the business has suffered in past years, or may in future years, from narrow margins, or no margins at all for a time, then the business is entitled to extra margins at other times to make up that loss.

To say that margins of 4.8 cents per gallon on ordinary gasoline are excessive, in the absence of a survey of the past and the future, is to venture into a possible, if not even probable, injustice to the oil industry, even though many jobbers today may be able to make good money at 4 cents.

Yet, on the basis of an opinion which considers only the present, the Wisconsin Department of Markets indicts the oil industry in that state on the charge of collecting $3,275,000 a year more money from gasoline users in that state than it should.

We do not believe the indictment is fair, nor warranted in any degree by the facts. We do not believe the department has the facts on which to base a fair judgment, nor that it is properly equipped to pass fair judgment, as much as we appreciate the high quality of its personnel on oil. Nor do we believe it is any of the department's or the state's business to exercise any such judgment, unless it passes judgment on every commercial activity and every money-spending activity in the state.

Scrutiny Should Be General

IF the state of Wisconsin is committed to the policy of scrutinizing and censoring business activity and its profit, then the state should, to be fair, set up a series of departments so organized that men representing the buyers in each case can pass on whether all sellers of services or commodities are getting too much money. This should apply to farm products and attorney fees and every thing else.

The other controversial point on which the department, in this bulletin, casually passes final judgment is whether the great growth in filling stations has been a detriment to the people. The department says yes. Again we don't believe the department has the facts, nor that it nor any one else is capable of passing fairly on the facts if it had them.

That there has been a big increase in service stations is not alone sufficient fact to condemn the increase. There is the matter of greater and better service provided by this increased number of stations, of taking gallonage away from other probably less efficient distribution facilities. Above all there is the right of every American to enter a business, in the belief he is enough better than the other man to beat him to a success. That is the opportunity that America wrote a constitution to protect. It is the way of the whole world and always has been and probably always will be, much as the reformers and shyster politicians would like to have it otherwise.

The Wisconsin department assumes this excess of competition is raising the price. LaFollette, the elder, was always yelling his head off to get an excess of competition in every line of business, on the theory it reduced prices, one of few of his theories that normal folks could agree with. Now the Wisconsin department has discovered that theory doesn't work. Since when? A few facts in support of that contention would be welcomed.

At all events, read the following official statement of the Wisconsin Department of Markets and figure how much you would like a similar outfit in your state.—W. C. P.

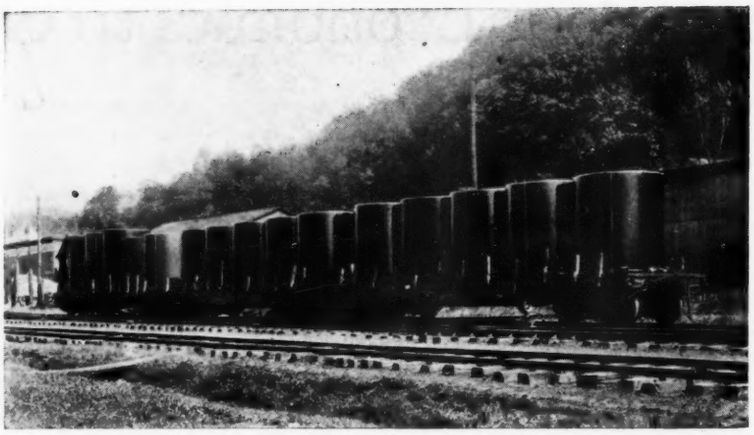
* * *

Department's Bulletin

"THE price of gasoline was reduced one cent on Oct. 26 throughout Standard of Indiana territory. This reduction marks the close of the season of heavy consumption and large profits described in our letter of June 30. The top-price season lasted more than five months this year, as compared with six weeks last year and sixteen weeks in 1924. The present retail price, after the reduction, still leaves a gross profit as high as the summer profits in other years.

"The first nine months of 1926 indicate the year will report a larger gross margin on gasoline than either of the two years preceding and will come close to the figures of 1923 when distributors' margins were notoriously large. Average tank-car and tank-wagon prices for the first nine

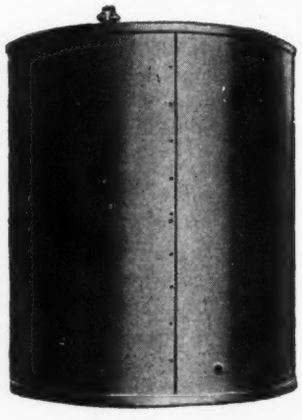
SISTERSVILLE
TANKS
MADE IN THE HEART OF THE OIL COUNTRY



OIL FIELD RUN TANKS

OUR oil field equipment is designed especially for oil country requirements. These "run" tanks are built in a range of sizes, from 30 to 100 barrels. They are made of $\frac{1}{16}$" shells and $\frac{1}{4}$" heads and are shipped complete ready to set.

An outstanding feature of Sistersville oil field tanks is their gas-tight design. When specified these tanks are equipped with vacuum and pressure relief valves, thus automatically eliminating the danger of excessive pressure and preventing vacuum at any time. The value of this will at once be apparent to the oil man with field experience. This type of construction is particularly desirable in fields where high grade crude oil is produced, as evaporation is absolutely prevented.



Write for special oil tank folder.

SISTERSVILLE TANK & BOILER WORKS
SISTERSVILLE W. VA.

BETHLEHEM
WAX PLANT EQUIPMENT

Filter Presses — *Wax Moulding Presses*
Wax Distillate Chilling Machines — *Scale Wax Cooling Drums*
Wax Testing Presses — *Paraffine Wax Sweater Plants*
Complete Wax Plants designed and built
Pumps, Stills, Towers, Condensers and other Oil Refinery Equipment
Oil Burning Systems — *Complete Power Plant Equipment*

BETHLEHEM SHIPBUILDING CORPORATION, LTD.
BETHLEHEM, PA.
GENERAL SALES OFFICES: 25 BROADWAY, NEW YORK CITY

months of each year were as follows, (low-test, Milwaukee, without tax):—

	1923	1924	1925	1926
Tank-wagon	18.7	16.3	17.6	18.4
Tank-car	13.0	11.7	13.8	13.6

"The gross profit to jobbers on spot purchases was therefore 5.7c for nine months in 1923, 4.6c in 1924, 3.8c in 1925 and 4.8c in 1926. The margin on high-test gasoline this year has been from 1¼c to 2½c higher than the above figures on low-test. Rebates to quantity buyers reduce the average margins slightly on both grades, perhaps by as much as ½c for some companies.

"Jobbers' margins averaging 4.8c on low-test gasoline are excessive. Experience of past years proves that this profit will encourage further expansion of investment, and the building of more service stations where no more are needed. Reports on the number of service stations operated in all middle western states reveal an increase of 43% in 1922, 43% again in 1923, 48% in 1924, almost 60% in 1925, and about 23% for the year ended September 30, 1926.

4.8 Cent Margin Excessive

"FOR the whole period since 1921 service stations have multiplied five and a half times, while the consumption of gasoline in the United States has increased less than threefold, and in Wisconsin has only doubled. In the two years ended September 30, 1926, service stations in the middle west have increased 100%, while gasoline consumption has increased 33%.

"The margin on low-test gasoline averaged over 5c during the touring season this year, and prior to the recent reduction it had been over 6c for five weeks. After the reduction the margin on spot purchases is still 5½, as contrasted with the figure of 4c which jobbers generally consider adequate. The retail reduction was only 1c, although the refinery price is now 2c below its high point in June.

"It is the Standard Oil Company's policy, we are informed, to adjust its retail price to the competitive levels established by independent jobbers and retailers. Margins like the above in earlier years have brought a wave of local price cutting through the state, but this year the Standard's list has been fairly well maintained. Forty towns have been reporting prices cut 1c or more below Standard's "normal" market as against sixty towns reporting late last fall.

Competition Apparently Failed

"IT is evident from the above that competition has failed to establish a competitive retail price in line with the refinery market. We attribute this in part to the fact that the prestige and power of the Standard Oil Company restrain the independent jobber from taking the initiative which Standard's price policy leaves to him, and in part to the fact that the continued increase in distribution facilities far in excess of any possible demand for them is increasing the costs of doing business and making wider margins imperative."

Notice

"OFFICIAL PROTECTION"

KEWANEE SAFE

"OFFICIAL PROTECTION"

THE Kewanee Safe Company, of Kewanee, Illinois, has purchased all patents, rights, stock and good will of the Ehrlich Safe & Lock Co., of Chicago, and hereafter this popular filling station safe will be known as the KEWANEE.

The petroleum industry is familiar with the

EHRLICH

SAFE, for filling stations. It is the safe that has forestalled so many attempted station robberies in the past four years.

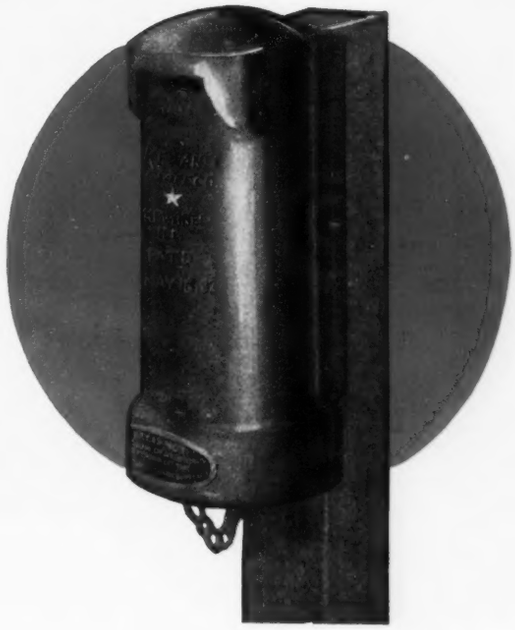
The men who compose the Kewanee Safe Co., are seasoned manufacturers of steel products. B. F. Baker, President, has been in the steel heating business for over 35 years. Daniel Bauer, Vice-President, and R. B. Glidden, Secretary-Treasurer, have long been identified with the manufacture of grain handling machinery and other steel products for farm use. Therefore, it is well to know that the Kewanee Safe is being made by an organization of experience and integrity—by men who know how a steel product should be built to accomplish its purpose.

The KEWANEE Safe is now available for prompt deliveries. All inquiries and correspondence relative to the Ehrlich Safe should now be addressed to the

KEWANEE SAFE CO.

"OFFICIAL PROTECTION"

520 Commercial St. Kewanee, Ill.



Cracking Plant Makes 64 A.P.I. Anti-Knock Gasoline Without Acid Treating

By Paul Truesdell
N. P. N. Staff Writer

CHICAGO, Nov. 12.

FRONTING on the Great Lakes whose waters furnish a cheap transportation route to the great cities on their shores and with much of the heaviest gasoline consuming territory in the United States within a rail haul of 100 or 200 miles, stands the East Chicago refinery of the Bartles-Maguire Oil Co. The headquarters of the company is in Milwaukee.

Strictly speaking, the Bartles-Maguire plant, which occupies a 20-acre site, faces on the ship canal which leads directly into Lake Michigan. It has 750 feet of water front and the water in the channel is 28 feet deep. The Prairie pipe line that carries Mid-Continent crude oil into the huge Whiting plant of the Standard of Indiana nearby, crosses the canal hardly a stone's throw from the Bartles-Maguire refinery but the plant does not get any crude from the pipe line.

A. G. Maguire, president of the company, says he believes it would not be hard for him to get crude from the pipe line if he wanted it, the pipe line being a common carrier, but at present he does not want it because he is running a cracking plant exclusively. His charging stock is Oklahoma gas oil, brought in tank cars, and he makes four products, a 64 gravity, water white gasoline, a 59-60 gravity gasoline, furnace distillate and fuel oil—little of the last.

The high gravity gasoline commands a premium of 4 cents a gallon over the tank wagon price on the ground of its high volatility and its considerable anti-knock value and the heavier gasoline is sold at the tank wagon price in competition with Red Crown.

Two Cracking Units

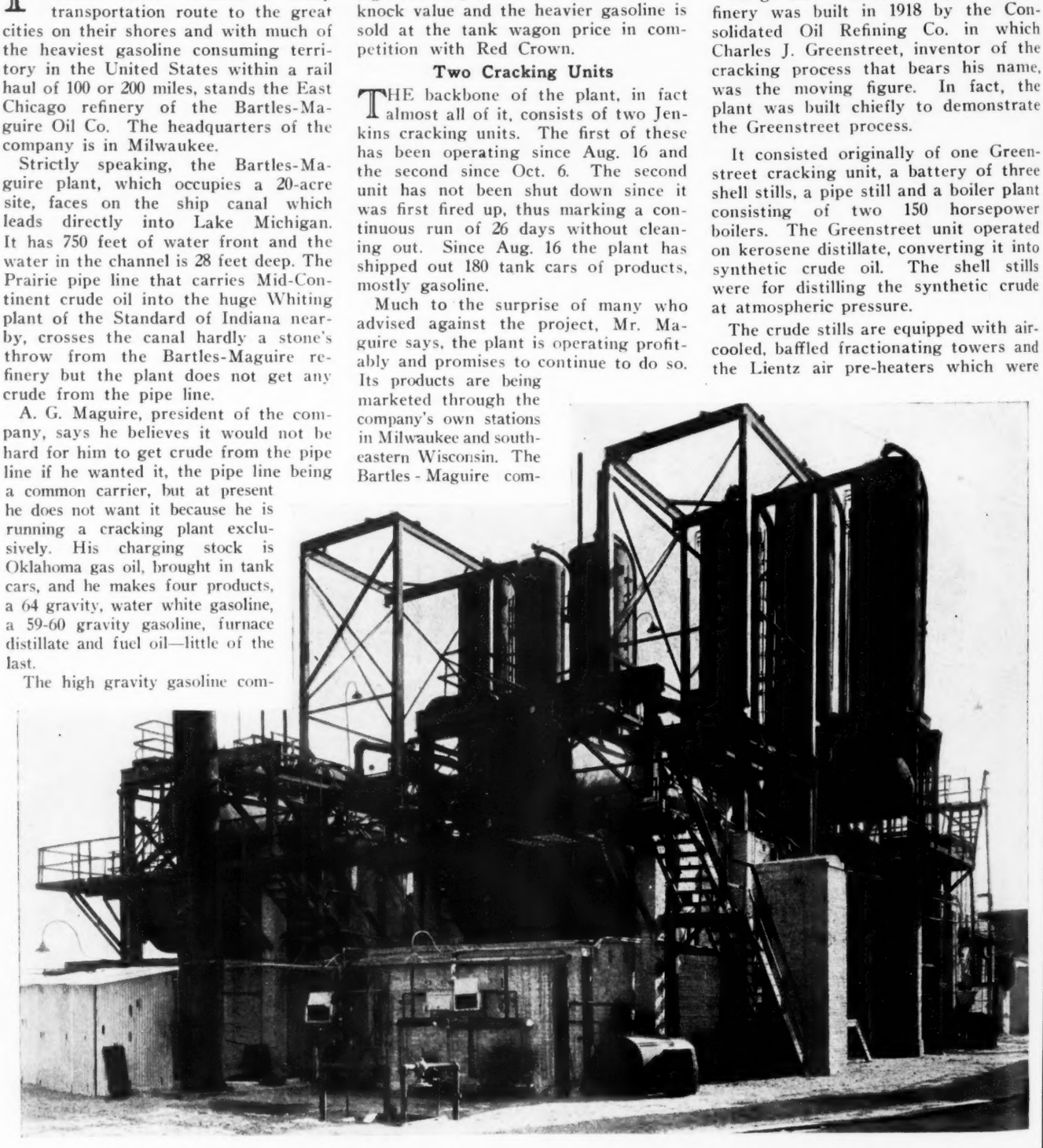
THE backbone of the plant, in fact almost all of it, consists of two Jenkins cracking units. The first of these has been operating since Aug. 16 and the second since Oct. 6. The second unit has not been shut down since it was first fired up, thus marking a continuous run of 26 days without cleaning out. Since Aug. 16 the plant has shipped out 180 tank cars of products, mostly gasoline.

Much to the surprise of many who advised against the project, Mr. Maguire says, the plant is operating profitably and promises to continue to do so. Its products are being marketed through the company's own stations in Milwaukee and southeastern Wisconsin. The Bartles-Maguire company has 12 bulk stations and 45 filling stations in that territory.

To go into a little history. The refinery was built in 1918 by the Consolidated Oil Refining Co. in which Charles J. Greenstreet, inventor of the cracking process that bears his name, was the moving figure. In fact, the plant was built chiefly to demonstrate the Greenstreet process.

It consisted originally of one Greenstreet cracking unit, a battery of three shell stills, a pipe still and a boiler plant consisting of two 150 horsepower boilers. The Greenstreet unit operated on kerosene distillate, converting it into synthetic crude oil. The shell stills were for distilling the synthetic crude at atmospheric pressure.

The crude stills are equipped with air-cooled, baffled fractionating towers and the Lientz air pre-heaters which were



General view of the two Jenkins cracking units at the Bartles-Maguire refinery, East Chicago, Ind. This picture was taken from the firing end of the units. The header drum and short circulating leg of each unit can be seen in he foreground, with the stills above. The three towers of each unit are in the background. The steel framework above each still is to support a tackle in case it should be necessary to hoist the motors that operate the propellers in the stills. Part of the Lientz air pre-heating apparatus can be seen in the foreground at the left corner of the right hand unit.

described in National Petroleum News a year or two ago. The refinery had not been operated for several years when it was taken over by the Bartles-Maguire company last May 1. Construction of the first Jenkins unit was begun immediately and it was in operation in August. The second was finished a month ago.

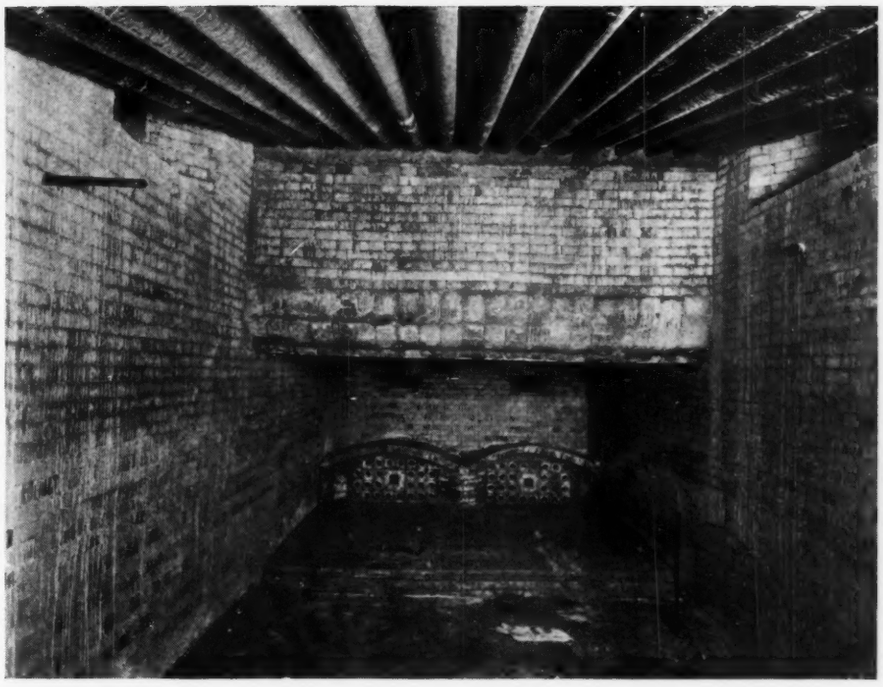
The old Greenstreet unit is standing although daily raids are made on it to salvage pipe, valves, fittings and so on that are needed elsewhere about the refinery. The old crude battery is used for rerunning the pressure distillate, or that part of it that is necessary to rerun, which is a minor part.

New Features Included

THE construction and operation of the Jenkins cracking unit as found at the plant of the Skelly Oil Co. Eldorado, Kan., was described in National Petroleum News about two years ago. Several improvements have been made in the process and in the design of the apparatus since that time and they are all embodied in the units at the Bartles-Maguire plant.

The Jenkins unit as installed here consists of a still, an expander, a reflux tower and two bubble towers, a reboiler and a settling tank.

The still is 6 by 35 feet with a slanting tube bank suspended beneath by two circulating legs each 3 feet in diameter. Each leg opens into a header drum 6 feet in diameter by 15 feet long. The drums are connected by the tubes of which there are 120, arranged in eight rows. They are seamless steel tubes of 3-inch inside diameter. The drums are of the "bumped" type, that is, the circumference is squared where the tube banks enter so that the tube ends go in through the flat surface. Opposite each of the tube ends on the outside of the header at the front of the still is a key plug which can easily be removed when it is necessary to replace a tube, which is said to be very infrequently.



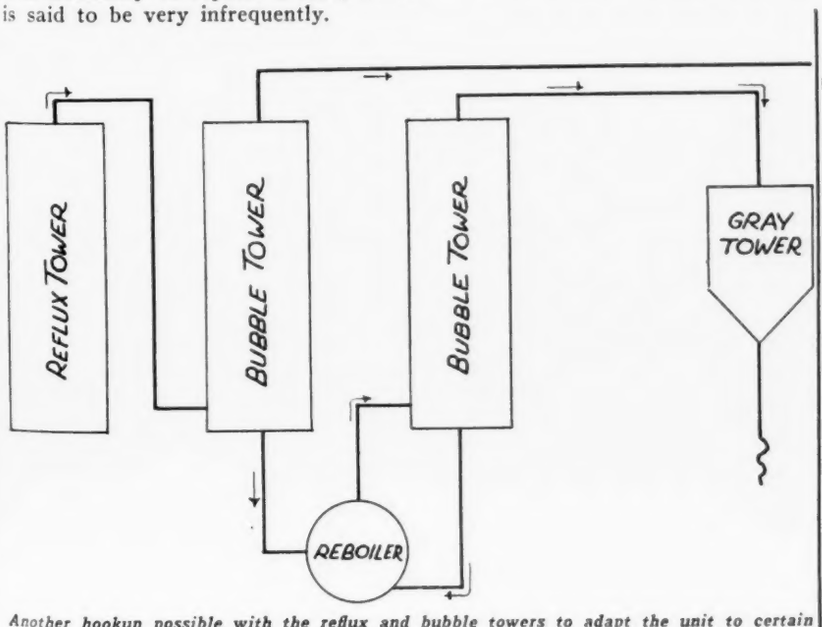
Interior view of the furnace of one of the Jenkins stills. The perforations are the gas burners. The trough traversing the center of the furnace floor is the channel through which the flue gases are sucked out to be returned to the furnace. The tube banks are shown at the top.

In the long circulating leg at the back of the still is fitted a 30-inch horizontal propeller like the propeller of a tug boat. This is mounted on a vertical shaft which works through an oil-tight stuffing box and is driven by a 35-horsepower motor which is mounted on top of the still. The motor was specially designed for the purpose by the General Electric Co.

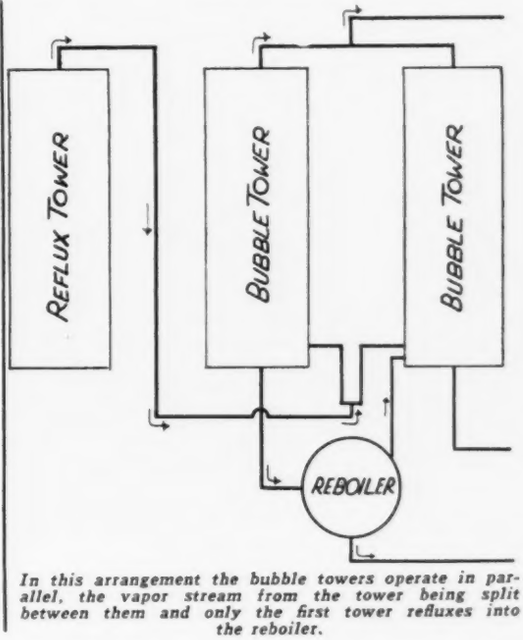
The stuffing box is kept tight by pumping into it a continuous stream of oil under pressure high enough to overcome the operating pressure of the still. This oil spirals down the shaft and seals the space between the circumference of the shaft and the guide sleeve in which it runs.

Plates set at right angles to the walls of the circulating leg just above the propeller form a throat which prevents backlash of liquid from the propeller and keeps the stream flowing downward through the leg. The design of this throat is what gives its effectiveness to the propeller in maintaining high speed circulation through the system.

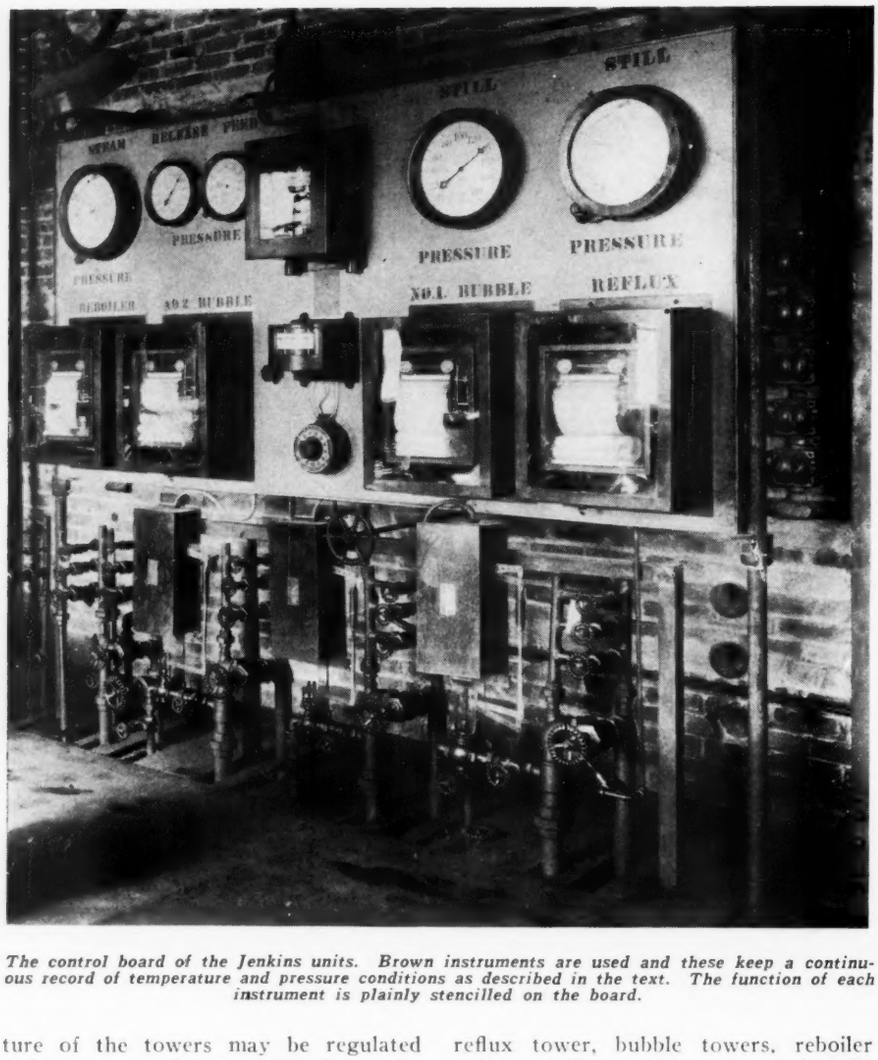
The reflux tower is 5 feet in diameter and 30 feet high, fitted with offset baffles. Two sprays, one at the top and one near the middle, feed in the charging stock. The two bubble towers are each 6 by 30 feet. The reboiler is a horizontal tank 5 by 8 feet and the settler is a horizontal tank with draw-off cocks in the bottom. Each bubble tower is fitted with both wet and dry "trim coils" in the top so that the tempera-



Another hookup possible with the reflux and bubble towers to adapt the unit to certain purposes. Here the reflux from both bubble towers is returned to the reboiler.



In this arrangement the bubble towers operate in parallel, the vapor stream from the tower being split between them and only the first tower refluxes into the reboiler.



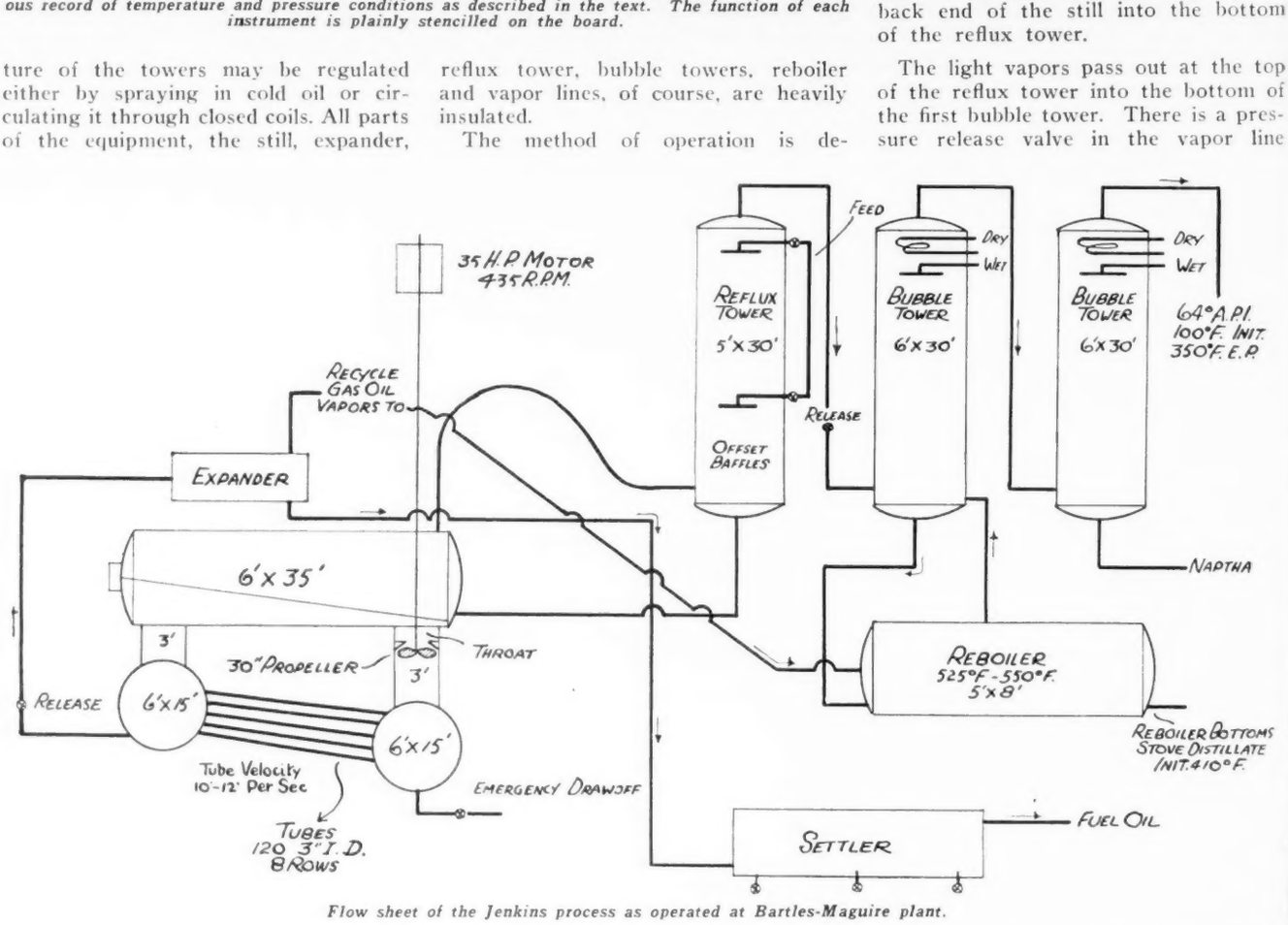
The control board of the Jenkins units. Brown instruments are used and these keep a continuous record of temperature and pressure conditions as described in the text. The function of each instrument is plainly stencilled on the board.

ture of the towers may be regulated either by spraying in cold oil or circulating it through closed coils. All parts of the equipment, the still, expander, reflux tower, bubble towers, reboiler and vapor lines, of course, are heavily insulated.

The method of operation is described as follows, by E. P. Brown, assistant to the president and chief technologist of the Jenkins company. All the feed, except the usually negligible amount pumped in through the stuffing box as described, is through the reflux tower. The cold charging stock falling through the tower meets the hot vapors coming over from the still. It condenses the heavier ends of the vapors and returns them to the still. The reflux tower is held under full still pressure which, in this plant, is about 138 to 140 pounds. The charging stock, having picked up considerable heat from the vapors, passes from the bottom of the reflux tower into the back of the still just above the propeller. The propeller builds up a static head of 9 to 12 inches at the front of the still, the oil then flowing continuously downward by gravity toward the propeller. The stream coming in from the reflux tower joins the constantly flowing stream from the front of the still. The propeller forces the oil down through the leg, through the tubes, up the leg at the opposite end and back into the still.

The propeller is so designed that it displaces 30,000 gallons of oil a minute at its operating speed of 435 r.p.m. There are 10,000 gallons of oil in the system so that means the whole body of the oil is circulated three times a minute. This gives a velocity through the tubes of 10 to 12 feet a second. Vapors, of course, are continuously passing off through the vapor line at the back end of the still into the bottom of the reflux tower.

The light vapors pass out at the top of the reflux tower into the bottom of the first bubble tower. There is a pressure release valve in the vapor line



Flow sheet of the Jenkins process as operated at Bartles-Maguire plant.

leading from the top of the reflux tower into the first bubble tower and this valve is opened enough to bring down the pressure on the bubble towers to about 15 pounds. The reflux from the first bubble tower passes into a reboiler and the vapors driven off in the reboiler are returned into the bubble tower near the bottom.

Products of No. 2 Bubble Tower

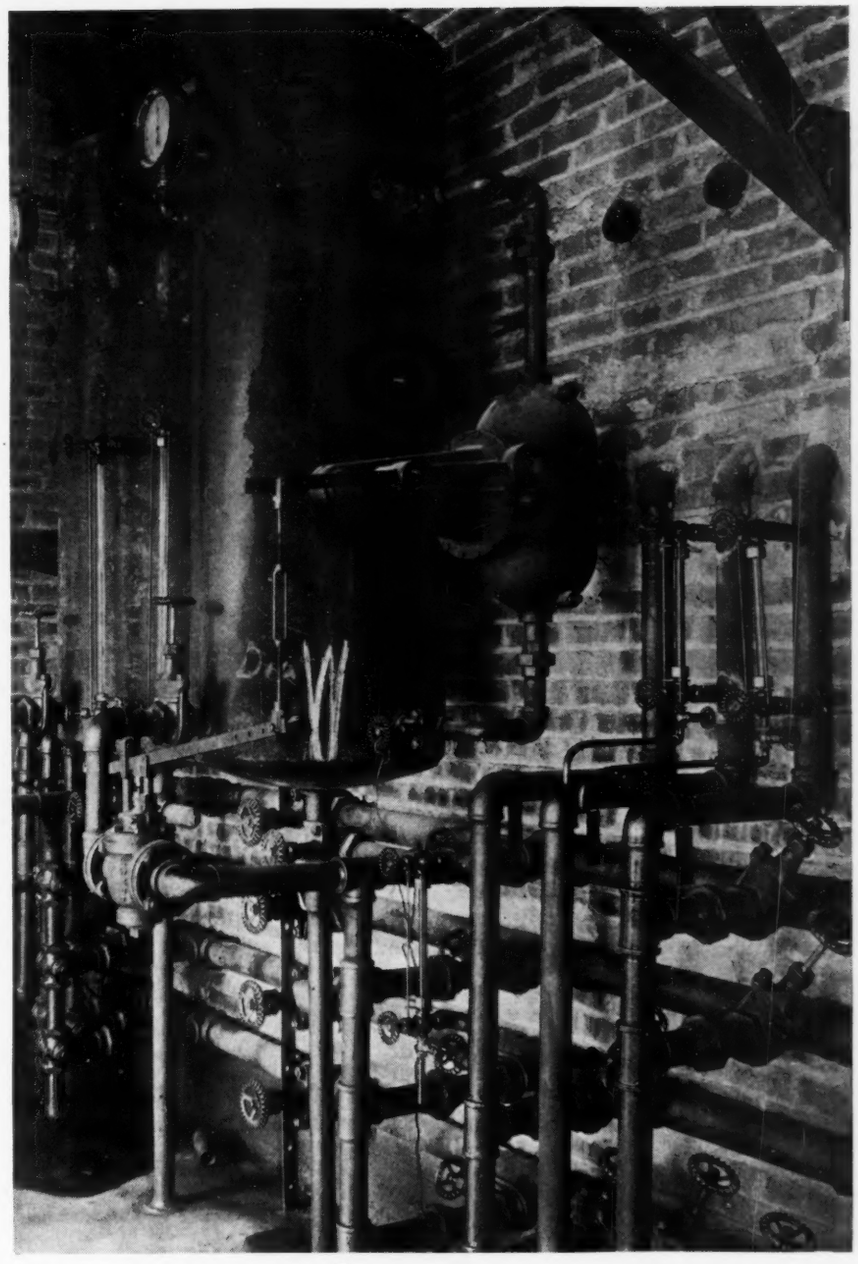
THE overhead vapors from the top of No. 1 bubble tower are passed into the bottom of No. 2 bubble tower. The vapors from the top of this tower are condensed into a 64 gravity, water white gasoline—23 color—that receives no treatment except a light doctor treat. This gasoline has an initial of 100° to 104° F. and an endpoint of about 350° F. The reflux from this bubble tower is a naphtha of 220° F. initial, 450° F. end point and 48° A. P. I. gravity. The bottoms from the reboiler is a stove distillate with an initial of about 410° F.

One of the principal features of the process is the use of lime, which is fed in with the charging stock. Hydrated lime is used. This costs about $20 a ton and is fed in in the proportion of ½ pound of lime to the barrel of charging stock, or a cost of about ½ cent a barrel. The lime is first mixed with a small amount of gas oil, the mixing equipment of a regular Graver lime water softener being used for the purpose. A system of baffles in the mixing tank and a motor driven stirrer makes an intimate mixture of the lime and oil. A small steam pump continually delivers into the charging line the proper quantity of the lime-oil mixture. The lime, according to Mr. Brown, accomplishes three purposes:

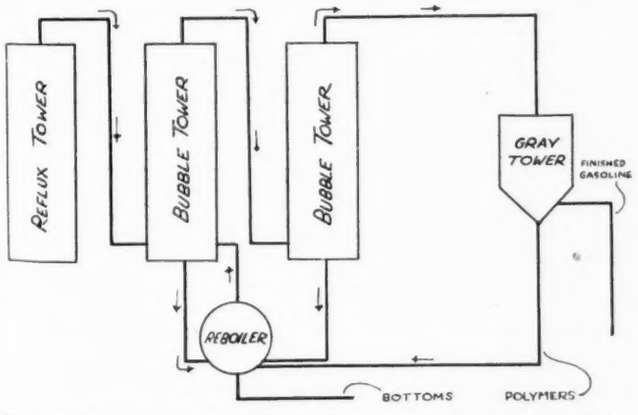
First—it prevents consolidation of coke in the still or in the tubes.

Second—it reacts chemically with the sulfur in the oil to form calcium sulfide, thereby preventing the formation of hydrogen sulfide and consequently avoiding corrosion of the equipment.

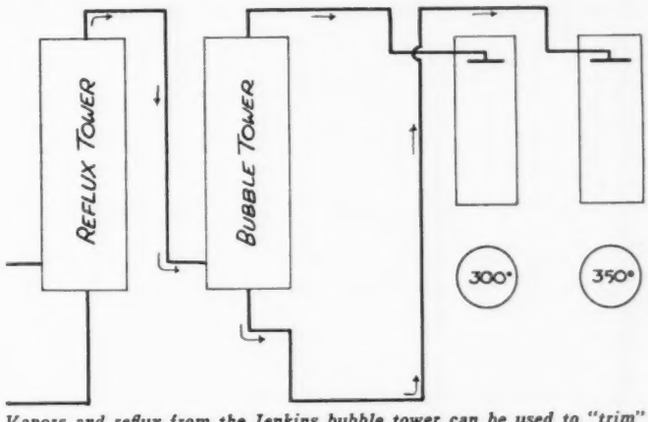
Third—it polymerizes the gum-forming compounds so that the gasoline coming overhead from the top of No. 2 bubble tower is gum-free and requires no acid treating. The lime products and the carbon in the form of soot are discharged into the settling tank with the fuel oil and there settle out. The high velocity at which the oil circulates through the system makes the use of lime very effective. Lime is



Receiving house of the Jenkins units at the Bartles-Maguire plant. Two gauge glasses on the pressure tanks show the 64-gravity gasoline streams and the gauge glasses wih the sample cocks at the extreme right show the naphtha streams.



Here the Jenkins unit is connected with a Gray fullers earth treating tower. Both bubble towers reflux into the reboiler and the polymers from the Gray tower also are refluxed into the reboiler.



Vapors and reflux from the Jenkins bubble tower can be used to "trim" or regulate the temperature in the towers in the first two stills on a crude battery where it is desirable to hook up the cracking operation closely with the rest of the refinery.

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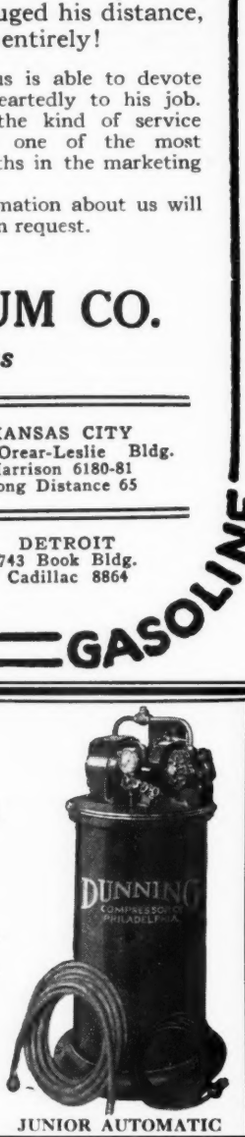


JUNIOR AUTOMATIC

about two and a half times as heavy as hot oil and therefore would tend to settle out at low velocity.

The fuel oil, low in cold test, is drawn off from the settling tank by means of a liquid level controlled valve as it reaches a predetermined height. The lime products and carbon are drawn off through the cocks in the bottom of the tank. This residue, according to Mr. Brown is negligible in amount.

Yields Obtained

THE two units at the plant are now running a daily average of 2600 barrels of charging stock and the yield of the several products, according to Mr. Maguire based on a run of several days, is as follows:

Gasoline	30 per cent
Straw distillate	10 per cent
Recycle gas oil	49 per cent
Fuel oil	9 per cent
Loss	2 per cent

The process is flexible, Mr. Brown says, and can be operated in various ways to meet the particular needs of the individual refiner. However, Mr. Maguire operates it in this way: In the last 10 days, the 30 per cent gasoline yield was divided as follows: 75.7 per cent 64 gravity gasoline; 24.3 per cent 450 end point naphtha.

The naphtha stream as it comes from the cracking still is rerun in the shell stills to give naphtha overhead and stove distillate bottoms. The naphtha is acid treated and blended with about 18 per cent of the 64 gravity gasoline to give a motor fuel of 59-60 gravity, an initial of about 104° F. and an end point of 430° to 435° F. The furnace distillate has an exceptionally sweet odor, Mr. Maguire says.

The 64 gravity gasoline above that needed for blending with the naphtha, is sold through Bartles-Maguire stations at a 4-cent premium. Mr. Brown says its anti-knock value is about equal to a blend of 18 per cent benzol with 82 per cent gasoline.

The distillate fraction could be mixed with the charging stock and cracked to yield gasoline but Mr. Maguire says at the prices he is able to get for it, it is more profitable to sell it for domestic heating fuel than to crack it. The fuel oil that is not burned in the refinery finds a ready market.

Gas Recirculating System

THE Jenkins cracking units are equipped with the Lientz gas recirculating system and air pre-heater. A high speed fan, motor or steam turbine driven, sucks out the flue gases from the rear of the combustion chamber and returns about 80 per cent of them to the furnace, similarly to its operation in connection with the Dubbs cracking plant as previousley described in National Petroleum News. The air preheating system works similarly, also, to that described in connection with the Dubbs unit, the outside air being drawn in by a fan through a bank of tubes in the flue, flowing countercurrent

to and stripping the heat from the flue gases on their way to the stack. The primary air for combustion thus goes into the furnace at a temperature of about 500° F. and the flue gas temperature at the base of the stack runs from 300° F. to 620° F.

The fuel consumption of the Jenkins process is said to be around 2 to 2½ per cent of the oil charged to the system. In fact, Mr. Maguire states that the total consumption of fuel in the entire refinery, including cracking stills, rerun stills and boiler plant, observed over a month, ran only 3½ per cent of the total throughout. After the Jenkins unit is on steam, the fixed gas generated in the system itself furnishes sufficient fuel.

When he was asked whether the units at the Bartles-Maguire refinery were standard Jenkins units Mr. Brown replied:

"The Jenkins unit consists of certain essential features which, of course, are standardized in every unit, and a group of associated features which are varied so as to best fit the cracking unit into any given scheme of refining. In adapting the Jenkins process in this way, the available stocks, the desired products and the particular markets open to the refiner form the basis for this adaptation."

When a refiner contemplates installation of a Jenkins cracking plant, the Jenkins company and the Graver Corp. sales and manufacturing agents of the process, set to work on this basis to fit the process to the refiner's requirements. The refiner's crude, the equipment he already has, the products he wants to make and all other operating factors are taken into account.

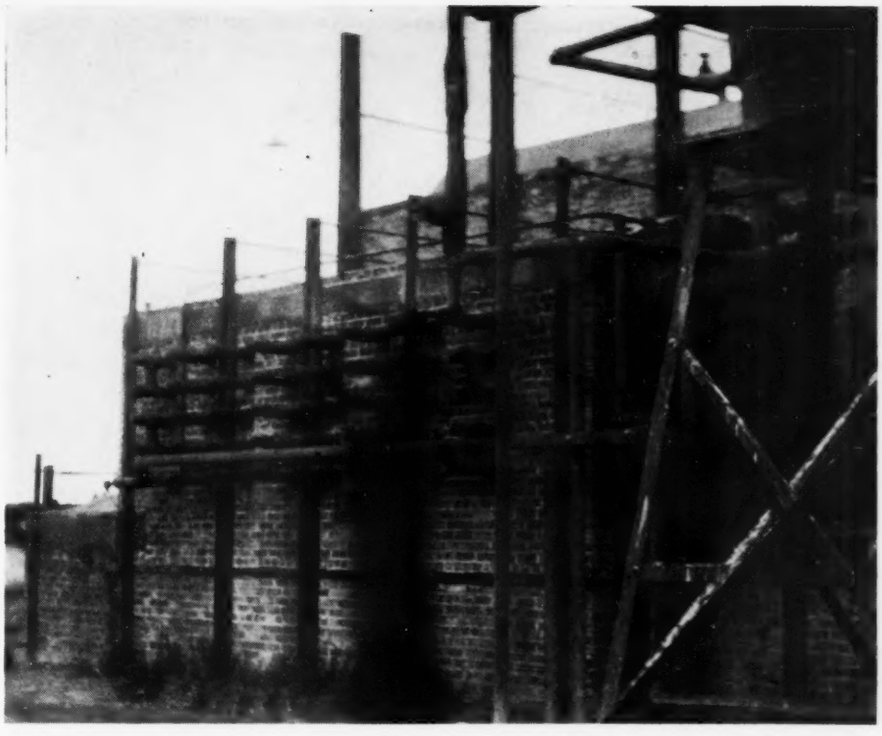
Temperature Is Emphasized

ANOTHER feature of the Jenkins process, according to Mr. Brown, is that it is not designed to operate at a certain arbitrary pressure. The charging stock on which the cracking plant may be running at the particular refinery under consideration is tested in the unit and the most desirable temperature at which to crack it is determined. The pressure is regulated to maintain that temperature.

"In other words," says Mr. Brown, "we have a cracking unit in which emphasis is placed upon the importance of uniform temperature conditions rather than uniform pressure conditions."

In line with this, it is conceivable that every Jenkins unit in the country might be operating under a different pressure.

The variations that can be made in the method of operating the Jenkins process are largely a matter of changing the hook-up of the reflux and bubble towers. The accompanying drawings, prepared from rough sketches made by Mr. Brown, show some of the possible arrangements of the bubble towers to fit particular refinery conditions.



A pipe still at the Bartles-Maguire plant, designed by the builders of the original refinery.

The Jenkins company has standardized on Brown temperature indicating, recording and control instruments. A battery of recording pyrometers mounted in the control house of the units keeps a continuous record of furnace temperature above the tubes, temperature below the tubes, temperature of the oil in the still, temperatures at the top and bottom of the reflux tower, temperatures at the tops of the bubble towers and temperature of the reboiler.

Mr. Brown says that studies are now being made in the effort to adapt automatic control to still further operations of the process so as to minimize the human factor so far as possible.

Salesmen Visit Refinery of Bartles-Maguire

CHICAGO, Nov. 13—A party of 32 salesmen of the Bartles-Maguire Oil Co., Milwaukee, visited the Calumet region of Chicago and inspected the company's refinery, Oct. 10. A. G. Maguire, Henry J. Stolz, J. F. McLaughlin and F. H. Mayfield were among the company's officials in the party.

The group left Milwaukee 11 a.m. Oct. 10 had luncheon on the train, traveled by motor bus from Chicago to the refinery near East Chicago, Ind., inspected the plant under the guidance of the local management and returned to the Northwestern station in time to have dinner on the train back to Milwaukee.

Two newspapermen accompanied the party from Wisconsin and several others were picked up at the Northwestern station in Chicago. The plant which is at once a refinery and an experimental laboratory for the Jenkins Petroleum Process Co., Chicago, is now turning out three cars of gasoline a day from gas oil, and is not running any crude oil. There are two Jenkins cracking units in service and when the plant is fully equipped it is expected to turn out 4½ cars a day.

Bartles-Maguire officials are considering the possibilities of their water frontage. Gasoline may be barged from East Chicago to Milwaukee and other bulk plants along the shore of Lake Michigan with a considerable saving in freight. That, however, is a possibility of the future for the company is moving the plant's output to its distributing plants now in its own tank cars.

Bartles-Maguire intends to have a radio station at Milwaukee, another at the refinery and possibly a third at Green Bay for company communication.

Keenan Leaves Louisiana Refining

CINCINNATI, Nov. 13.—Walter J. Keenan, has resigned as Cincinnati manager for the Louisiana Oil Refining Corp., Shreveport, which recently acquired the Ohio Refining Co. from Mr. Keenan and his associates. Mr. Keenan was vice-president and general manager of Ohio Refining Co.

About five years ago, after his resignation as director of the Moore Oil Co., Cincinnati, when that company was acquired by the Pure Oil Co., Mr. Keenan organized the Ohio Refining Co. and built a refinery at Bond Hill, a suburb of Cincinnati.

After a vacation, Mr. Keenan expects to devote his time to his refining interests outside of this city, and to the marketing of oils in Ohio.

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Technical Meetings Will Predominate At Institute Convention

NEW YORK, Nov. 13

GROUP sessions at which technical men read papers on and discuss vital problems which concern all branches of the business, take up all but one afternoon of the program of the American Petroleum Institute which will convene in the Mayo hotel, Tulsa, Dec. 7, 8 and 9.

The annual meeting of the Institute each year is becoming more and more an occasion when leaders of the industry get together to exchange ideas and discuss problems that confront all of them in their daily work. So crowded is the program of the technical committees, that many of them, including all the committees on standardization, will occupy the whole of Dec. 6, preceding the opening of the institute meeting with preliminary work. Committee D-2 of the American Society for Testing Materials is also to meet on Dec. 6.

The preliminary program as announced by the institute, follows:

Monday, Dec. 6, 1926

On Monday, December 6, 1926, the day prior to the convening of the Seventh Annual Meeting, the following named committees will meet at the Hotel Mayo at the time and place indicated:

Committee Meetings

Morning

9:00 A. M. —Committee on standardization of specifications for steel and iron pipe for oil country tubular goods. (Room 312.)

9:00 A. M.—Committee on standardization of wire rope and manila cordage. (Room 313.)

9:00 A. M.—Committee on standardization of belting. (Room 314.)

9:00 A. M.—Committee on standardization of rig irons. (Room 315.)

9:00 A. M.—Committee on standardization of standard rigs and derricks. (Room 316.)

9:00 A. M.—Committee on standardization of rotary drilling equipment. (Room 317.)

9:00 A. M.—Committee on standardization of pumping equipment and engines as applied to the production of oil. (Room 318.)

9:00 A. M.—Committee on standardization of cable drilling tool joints. (Room 319.)

9:00 A. M.—Committee on standardization of oil field boilers. (Room 320.)

9:00 A. M.—Committee on standardization of oil steel storage and production tanks. (Room 321.)

9:30 A. M.—Committee D-2 (A. S. T. M.) on petroleum products and lubricants. (16th floor banquet hall.)

10:00 A. M.—Committee on a uniform method of accounting. (Room 301.)

10:30 A. M.—General committee on railroad transportation; mechanical sub-committee; car service committee, and special committee on method of testing vapor pressure. (Writing room, Mezzanine floor.)

10:30 A. M.—Committee on public relations. (Room 303.)

11:00 A. M.—Joint meeting committee on testing methods and specifications and committee D-2 (A. S. T. M.) on petroleum products and lubricants. (16th floor banquet hall.)

Afternoon

2:00 P. M.—General committee on fire prevention. (16th floor banquet hall.)

2:30 P. M.—Committee on method of calibrating tank cars. (Room 302.)

8:00 P. M.—Special correlating committee on gages and gaging practices. (Room 312.)

Evening

Entertainment will be provided by the Tulsa committee on reception and entertainment.

Tuesday, Dec. 7, 1926

Morning

10:30 A. M.—Meeting of the board of councillors. (Crystal ball room, 16th floor.) (To nominate candidates for election as members of the board of directors.)

Afternoon

2:30 P. M.—General Session—(Crystal ball room.) The president's address: W. S. Farish; address: C. C. Herndon, Skelly Oil Co. Report of board of councillors and election of directors.

Evening

8:00 P. M.—Annual Dinner — (Petroleum Exposition grounds-Transportation provided.)

Note—This will not be a banquet. It will be an oil country dinner of plain food. No dinner jackets, no formal speeches, no assignment of places. Tickets $1.50 each. Reservations must be made not later than Dec. 4. Please send your application now, with check. Every oil man, and all men engaged in allied industries, invited. Opportunity will be given those attending to meet each other.)

Wednesday, Dec. 8, 1926

Note—There will be no general session on Wednesday. The morning, afternoon, and evening will be devoted to group sessions, arranged by general topics, at which the various subjects will first be treated in addresses and papers by selected speakers. After each speaker has finished, opportunity will be given for general discussion of the subject.

Morning

10:30 A. M.—Meeting board of directors (Lounge room, 16th floor.) (Luncheon for members of the board at noon in luncheon room V-W.)

10:00 A. M.—Group Meetings:

Group 1

General topic: Standardization and improvements in oil field production methods and equipment. (Crystal ball room.)

Belting—Report on standard specification, A. H. Riney, national chairman. "Recommended Field Practices on Belting," H. L. Trax, Gypsy Oil Co.

Oil Field Boilers—Report on standard specification, A. B. Steen, national chairman.

"Proper Installation and Care of Boilers," (Speaker to be announced.)

Group 2

General topic: Motor Fuel. (Junior ball room, mezzanine floor.)

"Fuel Characteristics and Engine Starting," H. C. Dickinson, U. S. Bureau of Standards.

"Motor Fuel From Coal," (Speaker to be announced.)

"Natural Gasoline in Motor Fuel," G. G. Brown, University of Michigan.

Group 3

General topic: A Uniform Method of Accounting. (Writing room, Mezzanine floor.)

"Uniform Methods of Oil Accounting"; report of committee, M. W. Mattison, chairman.

"Allocation of Costs to Refined Products," J. H. Tuttle, Standard Oil Co. of California.

"The Pay-Out Status of Oil and Gas Producing Properties," H. G. Humphreys, Skelly Oil Co.

"Production Accounting," W. K. Cottrell, Mid-Continent Oil & Gas Association.

Group 4

General topic: The Transportation of Petroleum Products. (Banquet hall, 16th floor.)

(The program for this session will be announced later. It will deal with the transportation of petroleum products by tank car and automobile truck.)

Afternoon

2:00 P. M.—Group Meetings:

Group 1

General topic: Standardization and Improvements in Oil Field Production Methods and Equipment. (Junior ball room, mezzanine floor.)

Cable Drilling Tool Joints—Report on standard specification, Thos. Fleming, Jr., national chairman.

"Recommended Practice and Proper Care of Cable Tool Joints in the Field," (Speaker to be announced.)

Standard Rigs and Derricks—Report on standard specification, W. W. Fondren, national chairman.

"Selection and Erection of Derricks for Drilling and Pumping," H. H. Anderson, Shell Co., of California.

Oil Country Tubular Goods—Report on standard specification, J. Edgar Pew, national chairman.

"Recommended Method for Care and Use of Pipe in Field," T. D. Davies, National Tube Co.

Group 2

General topic: Motor Fuel. (Banquet Hall, 16th floor.)

"Motor Gasoline of the Future," T. A. Boyd, General Motors Research Corp.

"Measurement of Anti-Knock Value of Gasoline." Round table discussion, led by T. G. Delbridge, Atlantic Refining Co.

Group 3

General topic: A Uniform Method of Oil Accounting. (Writing room, mezzanine floor.)

"Allocation of Marketing Costs to Products," S. A. Giraud, Humble Oil & Refining Co.

"Marketing Classification," H. J. Ralph, Indian Refining Company.

"Marine Accounting," F. S. Reitzel, The Sun Oil Co.

"Natural Gasoline Accounting," George F. Winters, Phillips Petroleum Co.

Group 4

General topic: Safety (Crystal ball room.)

Note—The petroleum section of the National Safety Council and the petroleum safety council of the Mid-Continent Oil and Gas Association are cooperating with the institute in the holding of this group session.)

"What the National Safety Council Does for Industry," W. H. Cameron, National Safety Council.

"Safety Work for the Oil Industry," (Speaker to be announced.)

First Aid Contest—The second annual first aid meet of the Petroleum Safety Council of the Mid-Continent Oil & Gas Association. Twenty oil company first aid teams of six men, each team trained by U. S. Bureau of Mines experts, will contest.

Evening

8:00 P. M.—Group Meetings:

Group 1

General topic: Oil Production Problems. (Crystal ball room.)

(**Note**—The Mid-Continent Oil & Gas Association, the Chamber of Mines and Oil and the Rocky Mountain Oil & Gas Association are cooperating with the Institute in the holding of this group session.)

"Lifting Oil With Gas," Frank F. Hill, Union Oil Co. of California.

"Restoring Pressure With Air, Gas and Water," A. A. Beard, Tidal Oil Co.

"Recovering Oil By Mining," (Speaker to be announced.)

Group 2

General topic: Petroleum Refining and Its Problems. (Junior ball room, mezzanine floor.)

W. S. Zehrung, the Pennzoil Co.

(**Note**—The Western Petroleum Refiners Association and the National Petroleum Association are cooperating with the Institute in the holding of this group session.)

"Refining Panhandle Crude," Walter Miller, Marland Refining Co.

"Advances in Petroleum Refining," (Speaker to be announced.)

Thursday, Dec. 9, 1926

"Some Manufacturing Problems of Refiners."

Note—Thursday morning and afternoon will be devoted to group sessions, arranged by general topics, at which the various subjects will first be treated in addresses and papers by selected speakers. After each speaker has finished, opportunity will be given for general discussion of the subject.

12:00 Noon.—Meeting of board of directors (Lounge room, 16th floor), (Luncheon for members of the board at 1 o'clock in luncheon room V-W.)

Morning

10:00 A. M.—Group Meetings:

Group 1

General topic: Standardization and Improvements in Oil Field Production Methods and Equipment. (Crystal ball room.)

Rig Irons—Report on standard specification, H. I. Lockhart, national chairman.

"Recommended Installation and Care of Rig Irons in the Field," Walter Jeffers.

Rotary Drilling Equipment—Report on standard specification, J. F. Lucey, national chairman.

"Recommended Field Practices and Methods," Ernest J. Nicklos, The Texas Co.

Group 2

General topic: A Uniform Method of Oil Accounting. (Writing room, mezzanine floor.)

"Proper Function and Relations of the Comptroller," Arthur Anderson, Arthur Anderson & Co.

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CORDAGE

RED AND PALE PARAFFINE OILS

"Tabulating Machine Method of Accounting," E. R. Hughes, Pure Oil Co.

"The General Balance Sheet," Round table discussion of committee's report.

Group 3

General Topic: Fire Prevention. (Banquet hall, 16th floor.)

"Fire Prevention in Petroleum Marketing," F. C. Singleton, Standard Oil Co. (Indiana).

"Improved Methods of Applying Foam," (Speaker to be announced.)

"Lightning Fires in California," Ralph J. Reed, Union Oil Co. of California. (Illustrated with moving pictures.)

"Oil Storage and the Lightning Hazard," F. W. Peek, Jr., General Electric Co.

Group 4

General topic: Oil for Industrial and Domestic Uses. (Banquet Hall, 16th floor.)

(**Note**—The American Oil Burner Association is cooperating in the holding of this group session.)

"The Oil Burner Situation," L. L. Jacobs, president, American Oil Burner Association.

"Making Fuels for Industrial and Domestic Burners," H. W. Camp, Empire Refineries, Inc.

"Burning Oil Under Stills and Boilers," Ernest H. Peabody, Peabody Engineering Corp.

Afternoon

2:00 P. M.—Group Meetings:

Group 1

General topic: Standardization and Improvements in Oil Field Production Methods and Equipment. (Crystal ball room.)

Wire Rope and Manila Cordage—Report on standard specification, C. C. Scharpenberg, national chairman.

"Purchasing Rope and Cordage on Specification and Recommended Practice on Installation and Care," J. S. McDaniel, Cordage Institute.

"Oil Field Usage of Wire Rope, Improvements Made and Experience with Wire Rope Purchased on Specification," L. B. Little, Standard Oil Co. of California.

"Review of Activities of Wire Rope and Manila Cordage Committee and Plans for Future," S. J. Dickey, national secretary.

Pumping Equipment and Engines—Report on standard specification, W. L. McLaine, national chairman.

"Proper Inspection, Care and Storage of Equipment," Hollis P. Porter, Gypsy Oil Co.

Steel Storage and Production Tanks—Report on standard specification, G. M. Vandaveer, national chairman.

"Recommended Field Practice," (Speaker to be announced.)

Group 2

General topic: A Uniform Method of Oil Accounting. (Writing room, mezzanine floor.)

"The General Balance Sheet," Continuation of round table discussion.

Group 3

General topic: Oil Geology. (Junior ball room, mezzanine floor.)

(**Note**—The American Association of Petroleum Geologists is cooperating in the holding of this group session. Program to be announced.)

Group 4

General topic: A Symposium on Corrosion. (Junior ball room, mezzanine floor.)

(**Note**—The Mid-Continent Section of the American Society of Mechanical Engineers is cooperating in the holding of this group session. Program to be announced.)

Evening

(Announcement of program to be made later.)

Good Service Holds Trade for Minnesota Dealer

ELY, MINN., Nov. 13—Ely Oil & Gas Co., owned and managed by Joseph Slogar, got a grip on Ely's gasoline and oil business when it opened its station in March, 1925, because the station of a company then in business was inaccessible because of a paving job. The Ely company gave such good service that it has been able to retain a large part of the trade and now, Mr. Slogar estimates, it does 85 per cent of the gasoline and oil business here.

Service includes filling radiators, testing and inflating tires, cleaning windshields, and making minor adjustments on cars. Road information and maps are supplied customers.

The company recently replaced piston pumps with rotary pumps at its bulk station.

Marland to Market New Gasoline Meeting Texas Co.'s Standard

Staff Special

TULSA, Nov. 13

THE Marland Refining Co. Nov. 11 launched a gasoline sales campaign similar to that begun last spring by the Texas Co. On that date advertisements in 250 newspapers covering the Marland trade territory announced a new gasoline which will be known as "Marland Pressure Gasoline."

For a number of weeks the 400 Marland service stations in the Middle-West have been working off their stocks of the old gasoline to prepare for selling the new motor fuel. Where stocks were light some stations had begun to sell the new gasoline prior to formal announcement. All shipments to Marland stations for the last two weeks have been the new gasoline.

"Marland Pressure Gasoline" is a 60-62 gravity product with an initial boiling point of 100 to 105 degrees F. and an end point of 400 to 410. The company has made no announcement as to the composition of the fuel except that it is a straight petro'eum product and undoped. It is being sold at the regular service station price.

Seven points of superiority are claimed for the gasoline by Marland as follows: no knocking, quick starting, more power, more miles per gallon, less crank case dilution, less carbon formation and no added cost.

Must Sell Under Marland's Name

CUSTOMERS of the Marland Refining Co. who sell direct to the public under the Marland trade mark handle the new gasoline as well as Marland's own service stations. It will not be sold in tank car lots, however, to the general jobbing trade to be resold under the jobber's own trade name. This is the same policy the company has pursued in marketing its motor oils made by the germ process which have been sold under the trade name, "Marland Super-Oils." The motor oil campaign was begun nearly a year ago.

In some of the northern states where Marland has sold a 64-66 gravity low end point gasoline at a premium there will be no change of policy on that commodity. The pressure gasoline will be sold at the regular price and the 64 gasoline at a premium as before.

For a number of months after the Texas Co. announced its "New and better gasoline" it was rumored that some of the Independent refiners in the Mid-Continent would meet the new competition by announcing a new motor fuel of similar specifications. At that time it was thought generally that the most auspicious time to bring out a high test motor fuel with anti-knock qualities would be at the beginning of the winter season. Refiners discussing the subject advance the opinion that motorists would be more likely to switch to the new gasoline in cool weather than in the summer when the average gasoline gives a quick start.

Advertising Will Introduce It

MARLAND'S advertising campaign was in the nature of a broadside. Full page space was taken in the 250 newspapers to announce the new gasoline on Nov. 11, and copy has been prepared for a series of five more full page advertisements to follow at short intervals.

The first advertisement made a general announcement and featured the seven points of superiority mentioned before. Following will come special full page advertisements discussing the individual selling points. Following is part of the text of the advertisement featuring more power: "Gangway! Long hill ahead . . . step on her and open her up . . . . . twenty miles at the bottom for a bad bridge . . . . forty at the top . . . . and your foot only half way to the floor.

"The reason? Marland Pressure Gasoline in the tank. That new high-powered, quick starting, more miles, no knock motor fuel that is making motors smile at miles.

"The cost? Not a penny over other gasoline."

The company has registered the new name "Marland Pressure Gasoline" with the U. S. Patent office as a new trademark to accompany the familiar red triangle with Marland Oils on a bar across its face. In the new trademark the word "pressure" will be in white letters on a red background with Marland gasoline in black letters above and below the red spot.

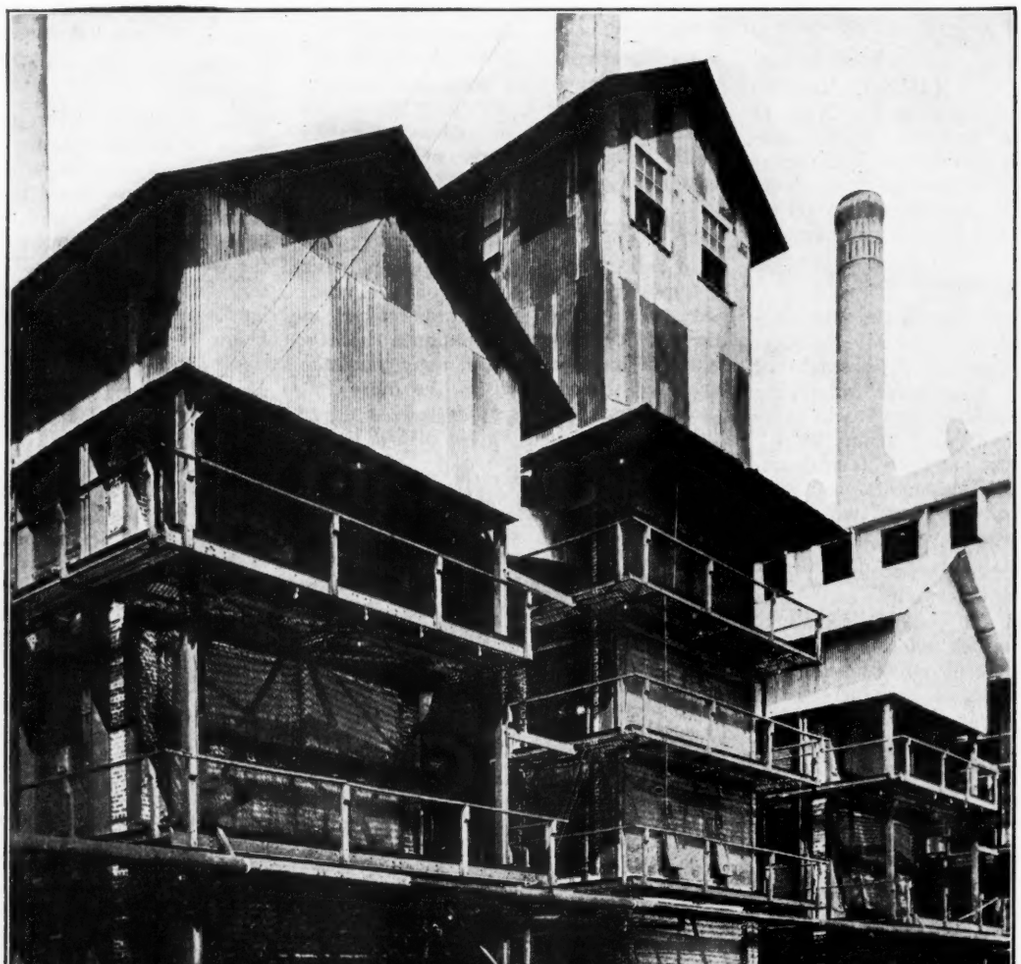
In preparation for production of the new gasoline the Marland Refining Co. began a $5,000,000 improvement program at its Ponca City refinery early this year. The big battery of Fleming pressure stills at the plant were supplemented by two 2000 barrel Cross crackers and six large Dubbs units capable of producing 1200 barrels per unit per day of pressure distillate yielding 900 barrels per day of finished gasoline. The refinery now has the capacity to produce very large quantities of straight cracked gasoline in addition to its production of natural gasoline and straight run gasoline skimmed from the crude.

Gulf Coastal Water Shipments, September Compared with August

(All figures in barrels of 42 gallons)

Company—Port	Coastwise Refined August	Coastwise Refined September	Export Refined August	Export Refined September
Standard of Louisiana				
Baton Rouge	973,201.00	929,677.00	1,034,607.00	852,900.00
The Texas Company				
Port Arthur	1,593,051.00	1,223,781.00	244,497.00	312,287.00
Gulf Refining Co.				
Port Arthur	2,054,209.49	2,140,381.66	97,128.49	16,358.50
Magnolia Petroleum Co.				
Beaumont	1,171,812.00	968,626.07*	.....	.....
Sinclair Refining Co.				
Houston	327,933.82	225,756.05	6,594.00	71,250.55
Humble Oil & Refg. Co.				
Baytown	1,247,765.65	845,517.55	860,403.44	817,528.23
Marland Oil Co.				
Texas City	.....	.....	.....	53,198.56
Atlantic Oil Producing Co.				
Atreco	111,484.99	115,834.16	.....	.....
Galena Signal Oil Co.				
Houston	131,000.00	146,000.00	60,000.00	105,000.00
Deepwater Oil Refineries				
Houston	10,000.00	.....	.....	.....
Keen & Woolf Oil Co.				
Houston	.....	.....	.....	.....
Totals	7,620,458.35	6,625,573.49	2,303,229.93	2,228,522.84
	Coastwise Crude		**Export Crude**	
Standard of Louisiana				
Baton Rouge	1,627,970.00	1,027,62.00	.....	.....
The Texas Company				
Port Arthur	64,704.00	106,878.00	.....	.....
Gulf Refining Co.				
Port Arthur	155,216.17	441,079.28	.....	.....
Magnolia Petroleum Co.				
Beaumont	583,167.34	658,866.24*	.....	.....
Sinclair Refining Co.				
Houston	426,556.77	294,769.27	.....	.....
Humble Oil & Refg. Co.				
Texas City	614,018.00	726,521.00	.....	.....
Neches Terminal	74,372.00	117,724.00	.....	.....
Baytown	1,022,113.00	806,594.00	.....	.....
Marland Oil Co.				
Texas City	763,571.51	509,132.78	.....	.....
Atlantic Oil Producing Co.				
Atreco	543,216.50	430,555.18	.....	.....
Beaumont	186,307.82	405,044.58	.....	.....
Smiths Bluff	49,953.34	.....	.....	.....
Pasadena	.....	299,727.07	.....	.....
Swiftsure Petroleum Co.				
Texas City	362,700.00	204,665.00	.....	.....
Crown Central Pet. Co.				
Houston	362,213.82	377,885.35	.....	.....
Totals	6,836,080.27	6,407,063.75	.....	.....

*Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.



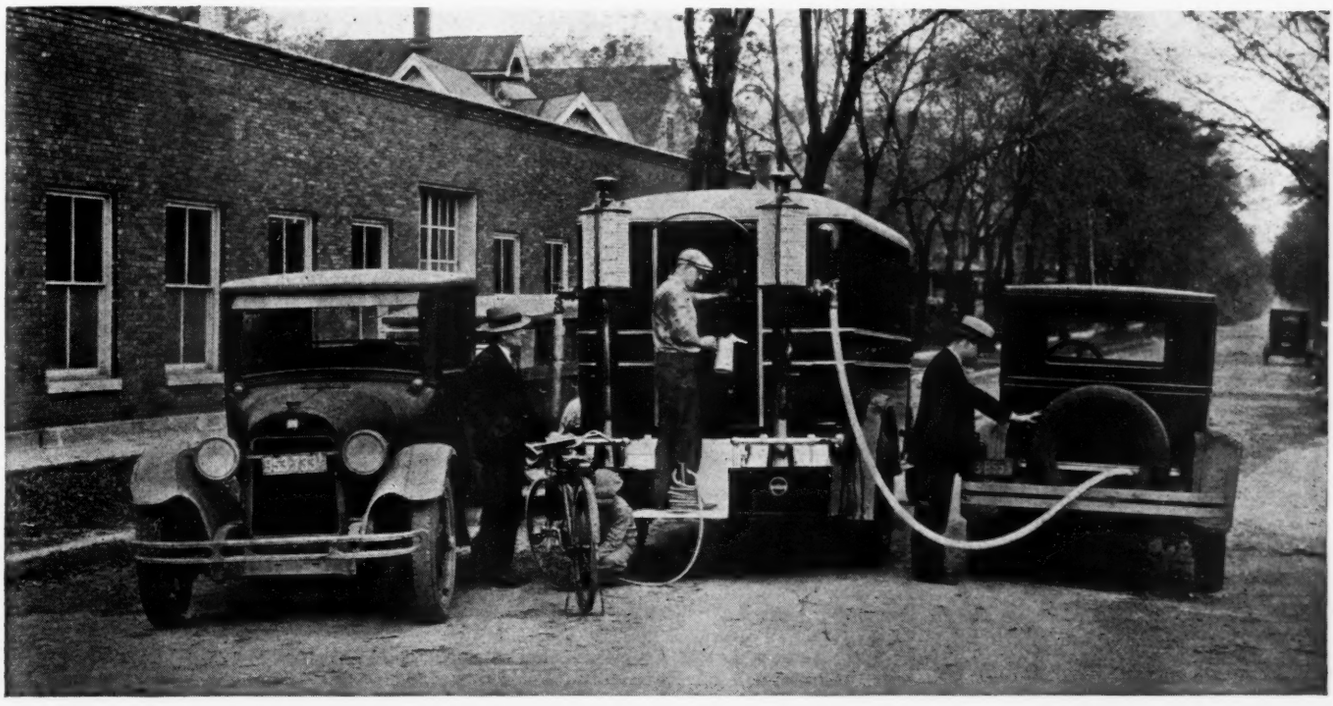
Unit No. 51, one of the Holmes-Manley Batteries
at the Port Arthur Works of The Texas Company.

This Battery recently established the following record for continuity of pressure stilling operation:—

Started Charging:	7 P. M. May 12, 1926
Fires Cut:	1 P. M. Aug. 18, 1926
Again in operation:	9 P. M. Aug. 19, 1926

98 days on stream charging 106,459 Barrels and back in operation after 32 hours shut-down for inspection and cleaning.

Motorized Service Station is Offered Marketers



Gas-O-Car exhibited by the White Co. at National Petroleum Marketers' Association convention.

CLEVELAND, Nov. 13.

A GASOLINE service station on wheels is the latest innovation to be offered to the oil marketing industry.

The White Co., manufacturer of White trucks and buses, displayed at the Atlantic City convention of the National Petroleum Marketers Association the Gas-O-Car, a motorized service station with gasoline pumps and motor oil dispensers for servicing motorists where crowds create temporary business.

The car looks like a bus. It is equipped with two gasoline pumps and two 350-gallon gasoline tanks. One tank may be used for high test and the other for competitive gasoline. Behind the tanks are compartments for four or five grades of oil. All tanks are enclosed within the body, which has a sliding door entrance behind the driver's cab and a double disappearing door at the entrance from the rear platform. Hose or pipe for re-filling the tanks is admitted through a trap door in the roof.

Both pumps are equipped with the usual type of hose used at filling station pumps. Each oil storage compartment has a hand pump to facilitate withdrawal. There are also compartments for cup grease, transmission grease, an Alemite gun, a two-cylinder air pump and supply tank leading to the rear platform, and sufficient hose to permit the inflation of tires. The air pump operates from the truck motor.

The Gas-O-Car has been designed for use on corners where permanent stations cannot be built, at country clubs, air fields, yacht club docks, fairs, race tracks, or wherever crowds gather, the company points out.

One man only is needed to operate the new car. It is mounted on a White model 51 chassis. It is equipped with 34 by 7-inch dual pneumatic tires in the rear, and the same size single tires in front. Budd Michelin wheels are used. The body was built by the Kastory Body Co., La Grange, Ill.

Special Train To Take "Wildcats" To Tulsa

Staff Special

LOS ANGELES, CAL., Nov. 12.—The "Wildcats," a special committee of the Chamber of Mines and Oil of California, are all set to run a special train over the Southern Pacific from Los Angeles to Tulsa for the annual meeting of the American Petroleum Institute. The train will leave Los Angeles at 11:30 a.m. Dec. 4 and arrive at El Paso at 1 p.m. Dec. 5 for a stay of nine hours. The train will make short stops at Fort Worth and Dallas and arrives in Tulsa at 4 a.m. Dec. 7. It will be known as the wild cat special.

Plans are being made for about 250 oil men and those representing supply concerns on the west coast to attend the meeting in Tulsa, although it is seriously doubted if more than 200 go on the special.

The "Wildcats," a fun committee, and a body that boosts for the chamber in the way of increased membership, luncheons, etc., are a live bunch, as the name would indicate. For that reason the trip is looked forward to with pleasure.

It has been rumored that a large oil company is planning to entertain everyone on the train with good time slightly out of the ordinary during the train's stay in El Paso.

Plant Meetings Postponed

TULSA, Nov. 13.—Meetings of operators of natural gasoline plants in north Texas which were to have been held late this month at Breckenridge and Wichita Falls, have been postponed until after the Tulsa meeting of the American Petroleum Institute in December. As secretary of the housing committee for institute convention, A. V. Bourque, secretary of the Association of Natural Gasoline Manufacturers, finds his time completely occupied for the present. He will be unable to arrange programs and conduct the meetings until the other task has been accomplished.

Sabourin Visits Tulsa

TULSA—Charles H. Sabourin, of the Lago Petroleum Corp., with headquarters in New York, spent several days in Tulsa the week ending Nov. 6. Mr. Sabourin is widely known in the Mid-Continent. He spent several years with the Dixie Oil Co. in Shreveport and Tulsa, going to New York when the Standard Oil Co. of Indiana, which controls the Dixie, assumed management of the Pan-American, of which the Lago is now a subsidiary. Mr. Sabourin will leave New York on Nov. 20 for an extended stay in Venezuela.

Europe as A Market for American Oil

By John P. Herrick

Read Before New York State Oil Producers' Association at Olean

RUSSIA, Roumania and Poland are the important factors in crude oil production in Europe. There is commercial production in France, Czecho-Slovakia and Italy. England has one producing oil well and Spain's oil production is so small that it is not listed.

Total European production this year will exceed 80,000,000 barrels. Russia and Roumania will show big increases this year. Italy produces 45,000 barrels of light oil a year and the government is making determined efforts to induce developments of Italy's potential oil resources. The Italian government is half owner of a refinery at Trieste and aiming to secure a foothold in the Roumanian fields. German chemists are producing oil in commercial quantities from coal and hoping to develop synthetic gasoline. In England an effort is being made to develop powdered coal as a substitute for fuel oil.

Consumption of petroleum products is steadily increasing in Europe and some alarm is felt over the recent report that the oil supply of the United States would last only six years. This was a question often asked me in France, for over 70 per cent of all her petroleum supplies come from the United States. This year France will buy more than a million tons of gasoline.

The same question was asked in Great Britain. That country depends on the United States for about 50 per cent of her oil requirements. Every British naval vessel and nearly all English liners are oil burners. Aerial fighting craft and commercial flying steadily call for increased supplies of gasoline and lubricants. Europe has reason to be conerned over future supplies of petroleum.

Profitable Oil Mining

AN experiment of world wide interest in mining oil is under way in Alsace, 20 miles north of Strassburg and five miles from the Rhine. Oil has been produced in this district for 158 years. The first concession was granted by Louis the XVI and development has been carried on ever since.

Oil was first produced by mining the shallow sands. Later, shallow wells were dug, then drilled. In all, more than 2500 wells have been drilled. In 1870 this territory passed to Germany and was returned to France in 1921. In 1917 German engineers sunk shafts and excavated galleries through the oil sands where the wells had ceased to produce. Through main and cross galleries into which the oil seeps, it is drained into reservoirs and pumped to the surface. The mines are equipped with modern ventilation and safety rooms where the miners go for fresh air and food in case of explosion. The results have been most satisfactory. Engineers estimate that the drilled wells take out only 15 per cent of the oil and mining recovers 75 per cent of the content of the oil sand. Several explosions caused damage before the plan was perfected. The oil is of low gravity, only 6 per cent gasoline, rich in kerosene and lubricants. From the 600 producing wells still in operation and the oil mines, the company operating the concession produces 500,000 barrels of crude a year. This oil is refined at Pechelbronn and the operating company pays gross dividends of over 40 per cent a year. The time may come when oil will be mined with great profit in the shallow fields of the United States.

Comeback of Roumanian Fields

ALTHOUGH Roumania's oil fields and refineries were destroyed by the Allies during the war to prevent their falling into the hands of the Germans, they are now producing 70,000 barrels of oil a day, comparable in quality to Mid-Continent crude. Activity has centered around a few spots with intensive drilling. In the Moreni district where the life of a well is three years, recovery is as high as 275,000 barrels per acre. Several pay sands are found, the deepest at 4500 feet. From six to nine months are required to complete the deep wells and they cost $60,000. Rotary outfits are used and wells finished with cable tools. Sand is so soft that no wells are shot.

When wells cease to flow they are bailed. Some wells are started with 27-inch pipe and finished with 14-inch to give a big hole for bailing. Regulation size is 18 to start and finish with 6-inch to top of caprock.

In 1922 all subsoil rights in Roumania were declared to be the property of the government. Pipe lines are government owned. Not more than 10 per cent of the production is owned by American companies. Royal Dutch-Shell and English companies are strongly intrenched. The oil is refined near the wells and at ports on the Black Sea. Roumania has produced oil for two centuries. For many years oil was used only for axle grease. In times long past wells were dug by hand to a depth of 800 feet. Roumania has large proven oil reserves and extensive areas that are classed as probable and possible by geologists.

Motor Fuel From Wood

ONLY two grades of gasoline are sold in France, 64 gravity for touring and 58 gravity for commercial vehicles. It is sold through pumps and five litre tins. In Paris the retail price is 25 cents a gallon. Deduct 7½ cents for French taxes, plus cost of ocean freight and the price is about the same as in Olean. In Paris there is a special city tax of a franc a gallon. There are long rows of curb pumps outside the city gates that do a thriving business. Throughout France the price varies from 32 to 39 cents a gallon for 64 gravity, 4 cents less for 58 gravity.

The principal wholesalers of gasoline in France are Standard Oil Co. of New Jersey, Royal Dutch-Shell and Anglo Persian Oil Co. Other American and foreign companies have French subsidiaries. There are 30,000 retail distributors in France and competition is keen. Vacuum Mobiloil is the best known lubricant in France. One sees the red Gargoyle signs everywhere. It is sold in two litre cans that have a return value of 7 cents.

A new substitute for gasoline is being developed in France. It is called gazogine. Wood is transformed by a simple process into a combustible gas guaranteed not to injure motors and to provide the same force as petroleum product.

Forest Towl Made Good

OLEAN, N. Y., Nov. 13

"TO save the oil tankers a long and dangerous trip around the north of Scotland during the war, a government pipe line was laid across the narrowest part of Scotland from the Clyde to the Forth to fuel the British fleet," John P. Herrick told New York state producers here.

"It is an 8-inch line, 37 miles long, with three pumping stations. It was built under the direction of Forest M. Towl, foremost pipe line expert in the world, the man who built nearly all the great pipe lines in the United States." Mr. Towl told the British and French commissioners that the work could be completed in 120 days after the material was assembled. They were incredulous. 'It will require much longer than that to prepare the plans,' they said. 'All right,' said Towl, 'I'll have the line completed within the limit set and you can take your time with the plans.' And his American pipe line crews made his word good."

Transported By Tank Truck— A Quarter of a Billion Barrels Annually

From peddling kerosene with mule drawn wagon tanks to the transportation of a quarter of a billion barrels of gasolene by tank truck annually—

From wagon tanks to an investment of one hundred million dollars in one hundred thousand tank trucks—

All in a decade and a half.

These facts, taken from recent statistics of the Oil & Gas Journal, measure the giant strides of the marketing division of the oil industry and emphasize the importance of transportation by tank truck.

A quarter of a billion barrels by tank truck annually. A tremendous volume. And most of it carried in Columbian Truck Tanks. The Columbians in active service have capacity enough to carry more than half of this great volume in a years time and yet average only two trips per day.

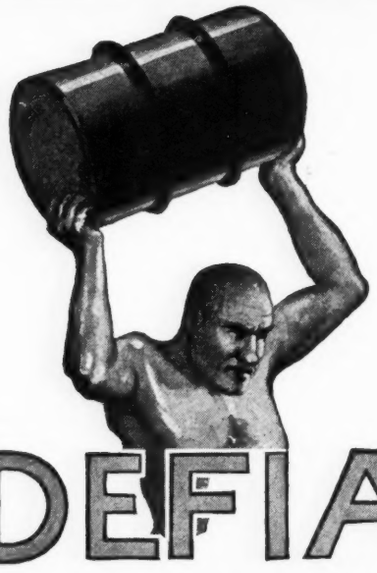
To technical engineers of the large National Companies, using thousands of truck tanks, and to seasoned operators of smaller fleets a comparison of its design, its monometallic construction and its record of performance quickly reveals the reason why the Columbian is dominant in the field of truck tanks.

COLUMBIAN STEEL TANK COMPANY

EST'D 1894

TANKS FOR THE WORLD

1405-1625 WEST 12TH STREET KANSAS CITY, MISSOURI



"DEFIANCE"

KEEP YOUR PROFITS

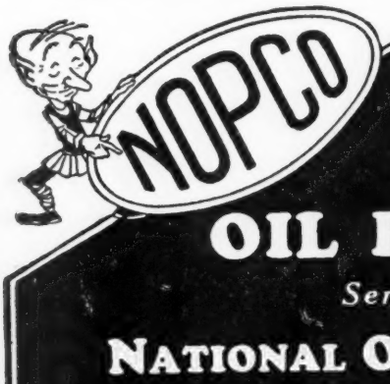
You make a quotation and sell your merchandise. The difference between the selling price and what it costs you to produce, sell and ship, represents your profit.

A damaged package, an unexpected shipping expense, means a loss.

Defiance Steel Barrels reduce shipping losses.

THE AMERICAN STEEL PACKAGE CO.

Defiance, Ohio



Make Your Own NON-CHATTER OIL FOR FORDS

Send for Information

NATIONAL OIL PRODUCTS CO.

HARRISON, N. J., U. S. A.

CHICAGO BOSTON CHARLOTTE

It is already in use in motors. According to the Paris Herald, the Berliet company recently sent a fourteen passenger auto on a tour of France during which 5000 kilometers were covered with an expenditure of only 500 francs' worth of wood, instead of 4000 francs' worth of gasoline which would ordinarily have been required. In France gasoline is called essence, in England petrol, in Switzerland benzine and in Spain gasolina.

40 Miles on a Gallon

MORE than 2,700,000 motor cars were in service in Europe on Jan. 1, 1926. Of this number 903,000 were credited to Great Britain, 735,000 to France, 323,000 to Germany, 114,000 to Italy. Counting motor cars, trucks, busses and motor cycles Great Britain has more than 1,250,000 gasoline vehicles. France has a 60 per cent duty on foreign motor cars. In spite of this there are 100,000 Ford cars and trucks and 9000 Ford tractors in France. One popular 6 h. p. French car is said to run 40 miles on a gallon of gasoline. There are more than 100,000 motor cars in Paris and taxi rates are very low.

England and Scotland, like France, have good roads and motoring is popular. About 20 per cent of cars in use in England are made in America. There is a big market for fuel oil for shipping in England. The liner I returned home on, the Mauretania, burns 28,000 barrels of oil on a round trip. When oil burners were installed the chief engineer reduced his force from 400 to 160 men. The Anglo Persian Oil Co., partly government owned, the Dutch Shell and Anglo American are the big three in Great Britain.

Anglo Persian has preference in all government petroleum requirements. Anglo American distributes American petroleum products and with its 9000 employes, fleet of 100 vessels of all types, 1600 tank cars and 2500 motor trucks and motor cars, completely covers the country. This company now has 1000 employes making oil stoves, which have become very popular since the great coal strike began.

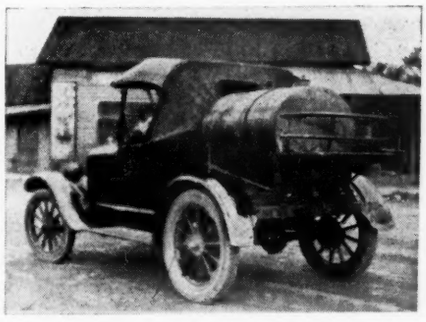
There are no curb pumps in London proper. Gasoline distribution in Great Britain is evenly divided between two imperial gallon cans and curb pumps. Wholesalers fix the price and distributors are allowed 2½ d. or 5 cents a gallon. There is agitation for a gasoline tax and it is certain to come.

Our Oil Diplomats Abroad

I FOUND the highest types of business men representing the great American oil companies in Europe, men who know the oil game from production to distribution, keen, alert, diplomatic. It is a highly competitive field, business is transacted in many languages, laws and customs differ and it is easy to develop misunderstandings. I wonder sometimes if we producers fully appreciate these trail blazers who make a market for American oil in the foreign fields.

One American oil company has a training school for foreign representatives who are recruited from graduates of the big colleges. This is the last instruction they receive before sailing: "You are going to a foreign land to represent the greatest country in the world and one of the world's finest business organizations. So conduct yourself that the people you come in contact with will always say: 'The United States must be a wonderful country, the Blank Oil Co. must be a great company, for it sends out to us such a fine type of business man.'"

Special Delivery Pleases Tennessee Trade



Side view of the smallest combination tank and stake truck. It is in the light oil delivery service of the Columbia Oil Co. at Columbia, Tenn.

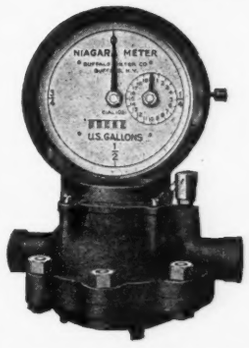
Staff Special

COLUMBIA, TENN., Nov. 11.—The smallest combination tank and stake truck of record is operated in special delivery service by the Columbia Oil Co., Columbia, which is by C. C. Johnson. It has been known to deliver as much as 800 gallons a day but Roy Sharp, the driver, admits he has to hurry to deliver that volume.

The tank has two compartments, 53 and 36 gallons each. Back of the tank is a rack for two milk cans and a funnel. The whole tank, rack and faucet mechanism is independent of the truck. It is built on a frame that is fastened with two lugs in front of the rear fenders and two bolts which are passed through the frame. When the machine is needed to deliver drums the driver backs up to the warehouse platform and removes the tank, replacing it with a platform on which to stand the barrels. The change requires only a few minutes.

Mr. Johnson says special delivery service to customers, including farmers as far away as 20 miles, has been his best method of making friends in and around Columbia and building up trade. He controls the largest share of the gallonage in Murray county, of which Columbia is the seat, a town of approximately 20,000 population. His plant there is less than four years old. Roy, a smiling colored boy, is the skipper of the special delivery flivver.

NIAGARA METERS WINTER-PROOF



Winter brings no meter troubles to the company using Niagara Meters. Outdoor locations in zero temperatures, snow and sleet beating on the meter have no effect.

Niagara Meters are built with heavy iron cases, zinc coated. The register case is rain and snow-proof. Meter construction is of metal thruout.

Write us today for prices.

BUFFALO METER COMPANY
2889 Main Street Buffalo, N. Y.

Patented May 18, 1926

A Hose Nozzle Valve *must* have SPEED in delivering gasoline. Hundreds of Filling Stations using the Buckeye Type "H" Valve testify to its fast delivering qualities.

This Valve meets all requirements of the Underwriters' Laboratories. It is made in 1" and 1¼" sizes and is being furnished as *regular equipment* by the leading Pump Manufacturers. High grade brass is used throughout its construction. Use the coupon below to get complete details.

Buckeye Iron & Brass Works
356 East Third St. Dayton, Ohio
Manufacturers of Quality Brass Goods since 1860

Mail this Now!

BUCKEYE

BUCKEYE IRON & BRASS WORKS.
356 E. Third St., Dayton, Ohio
Please send me further information and prices for Buckeye Service Station Equipment.

Name .....

Address .....

Youngstown TANKS

Youngstown TANKS

STANDARDIZED

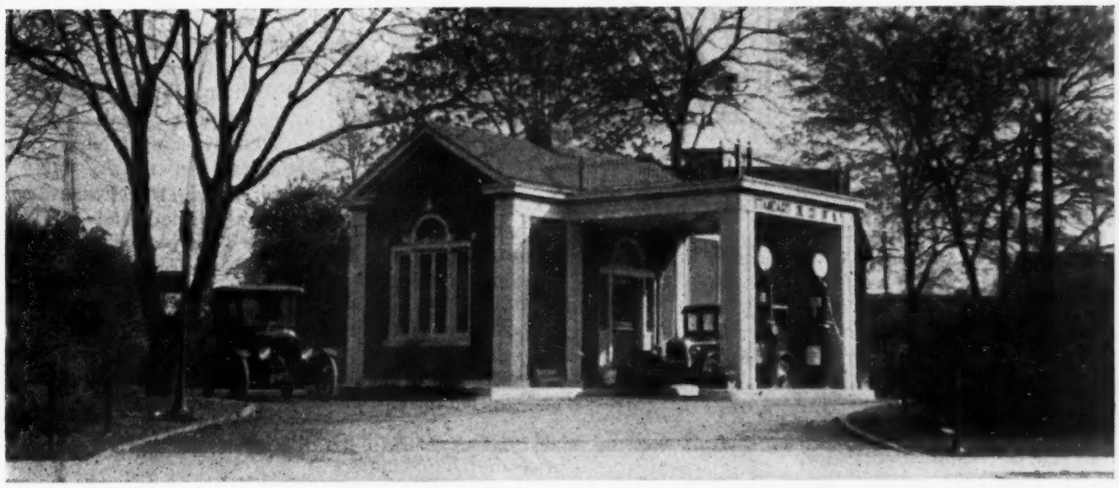
Over a quarter of a million Youngstown Tanks are in service in this and foreign countries — more than 300,000 to be exact.

Write for free copy of Bulletin 500

The YOUNGSTOWN BOILER & TANK Company
Youngstown Ohio ·· U.S.A.

Motorists Tell In Own Words What They Expect At Filling Stations

By V. B. Guthrie
N. P. N. Managing Editor



A typical Standard Oil Co. service station at Syracuse, N. Y.

NEW YORK, Nov. 13.

INTELLIGENT service and quality in petroleum products are still what people want most at gasoline stations.

Accessories, or impedimenta—so they seem sometimes—that have fastened themselves upon the gasoline station business in the last few years, such as soda fountains, hot dog stands, and so on, are minor considerations as far as the trade at oil company stations is concerned.

Quality of product needs no further definition. Intelligent service may be summed up as seeing that the car is ready for the road as far as its water, air, gasoline and oil needs are concerned.

These conclusions are based upon an analysis of the answers sent to the Standard Oil Co. of New York last summer in its motor oil contest, for which the company distributed $2,500 in prizes.

It is true, the questions in this contest were designed to make the contestant think of lubrication needs of his car, and hence lubrication service particularly. The uniformity, however, with which the answers featured quality and service makes it plain that a large part of motorists give their trade to the stations of the company they believe will best take care of the needs of their car; and not because the station is a convenient place to buy a quick lunch or for some other reason of the same sort.

The Standard Oil Co. of New York received thousands of answers to the five questions relating to lubrication and service that made up the contest. They came from all over the United States. Some were type-written and in hand-decorated folders, and some were in penmanship hard to decipher. The answers were analyzed as to several points. For example, more answers dwelt upon quality of product as a prime consideration in service station trade than on any other point.

A frequent suggestion was one to call attention of the motorist to the possible need for changing oil in the crankcase or of replenishing the supply was the leading service the station attendant could give the customer. Personal characteristics and courtesy of attendants was given as a highly important requisite in 300 replies.

Although there was some newspaper agitation in the east last summer about substitution of inferior grades of motor oils for quality goods, no appreciable number of motorists participating in the contest brought up this point. Many answers did give experiences of buying another brand of motor oil which did not give the satisfaction of Standard of New York products, but these were not cited as cases where the motorist was deceived as to the brand of oil he was buying.

The Standard of New York's contest was widely announced in newspaper advertising in New York and New England. Four of the five questions were given out separately in newspaper advertisements. For the fifth, however, those interested had to go to a Socony dealer to obtain a booklet which contained it.

Lubrication Featured

THE questions were cleverly drawn to engage the mind on the question of correct lubrication of an automobile. The first was, "What is the principle of lubricating (the Standard's coined name for correct lubrication of a motor car)? How does the consistent use of Socony motor oil carry out this principle?

The second question was, "Of what service has a lubrication chart been to you?"

The third was, "Why is poor oil the most expensive?"

The fourth was, "Why is draining of the crankcase so important?"

The fifth question was the one announced only through the booklet which was entitled, "The Veteran Motorist's Secret."

It was the one designed to draw out the contestants on what they regarded as service at the gasoline station. It was, "What constitutes in your mind the best service a filling station should render? Give personal experiences." A large variety of experiences were narrated in the answer.

The booklet also contained the other four questions and gave a concise but scientific talk on lubrication by an expert. For those who are not familiar with the advertising of the Standard of New York, The Veteran Motorist is a most realistic character who voices the advertising message of the Company to the public. The

Veteran Motorist talks through the newspaper advertising columns, rather than the company, giving a cold statement regarding its service or its products over its name. Some of the copy carries a picture of this character of the advertising world — and a confidence-inspiring individual he is indeed in appearance.

Winner of the first prize in the contest, $1000, was H. A. Grant, of Rye, N. Y. He is a Columbia University graduate and was a tester and later advertising manager for the old Maxwell-Briscoe car. In all, Mr. Grant estimated he has driven automobiles 250,000 miles and says he has used Socony products wherever available since 1912.

Uniforms Give Advantage

THAT oil company stations, with uniformed attendants and uniform service, have a distinct advantage over the individually owned and operated station in the minds of many motorists, particularly women who drive alone, was brought out in the replies in the contest. The oil company is assumed to hold a degree of responsibility for the politeness and service of its employes that cannot be fully taken for granted at the nondescript individual station. One woman wrote:

"It is a long lane that has no gasoline. Red pumps grow everywhere. No buying public is better or more conveniently served than the motorist. To pick out the greatest service rendered by all filling stations is impossible. Only by dividing them into two classes—the individually owned and the company owned—can I mention a special service.

"It seems to me the independence of women drivers today is due as much to the company owned stations as to improvement in motor car design. I, like many other women, must frequently drive alone. I should not dare stop at a strange station on a lonely road. But I would stop at any station where I saw the attendants wearing the uniform of a well-known concern. I should be sure of service, of courtesy and of (important) safety."

"A car will not run without gas, but, unfortunately, it will run for a time with improper oil," wrote a woman from Austin, Texas. "So the average woman driver says the best service is properly to handle the question of oil. No matter how much practical sense or how many college degrees the A. W. D. may have, she is usually dumb when it comes to understanding what is under the hood of her car. She is utterly dependent on and at the mercy of the filling station and garage."

"It is only after leaving the filling station that real service starts," epigrammatically wrote another woman.

Marriage a Service at Filling Station?

CINCINNATI, Nov. 13.—Maybe up-to-date filling stations are missing an opportunity to add another service.

The proprietor of the Brighton Filling Station here was recently asked to marry a young couple who drove to his station. He told them the filling station business had not yet advanced to the point where the performance of marriage ceremonies was a part of the service.

"In my opinion the best services a filling station can render are those which bring the station no remuneration, but relieve the motorist of small distasteful and untidy duties about his car." wrote another woman from Washington. "The two most important are testing and filling tires and the replenishment of water in the radiator."

"The rendering of services chargeable to goodwill give a station the atmosphere of a public servant rather than of a commercial enterprise. As a result, the motorist has confidence not only in the attendants, but also in the product he buys. He inevitably returns," wrote another.

Undoubtedly the giving of advice and service as to draining crankcases or replenishing the motor oil supply in a car is regarded as the most valuable service the station attendant can give. The motorist wants to leave the station easy in his mind that the condition of his motor oil has been checked up and the oil changed if necessary. That's natural, for he cannot as easily check this as he can his gasoline supply or water for his radiator or how much air there is in his tires; and he also knows that nothing can do more damage to his car, outside of an accident, than neglecting his motor oil. One contestant summed it up thus:

"Guaranteed lubrication work is the best service a filling station can render. The job supervised, directed, checked up—not the job leaving the motorist out of luck because unfinished."

"Motorists always express themselves as wishing to know the various features in connection with the operation and lubrication of their cars," wrote one prize winner. "The best service a filling station should render lies in the attendant, who should, diplomatically, intelligently and convincingly explain the who, how and when of automobile lubrication to the motorists and advise strict adherence to the lubrication chart."

Many letters spoke of the value of the lubrication chart the Standard of New York keeps posted at its service stations. The motorist, it is evident, regards the chart as an authority to insure the proper grade of oil being served by the attendant and as an added guarantee of proper lubrication service at the station.

Many Suggestions Given

MANY letters in the contest carried practical suggestions for services that could be given at some stations. Many of these are already being given by some companies. For example, several contestants wrote of the value to tourists of good-sized wall maps at stations, from which they can determine their routes. Several writers also dwelt upon the real service the tourist is given by being advised by the station attendant on nearby road conditions, detours, bad stretches, where roads are being refinished and tar or asphalt is likely to be picked up on the car, and special police regulations that a stranger in the community might disregard.

Two or three letters said it would be a service to the tourist if the station attendants could keep a list of good places in the neighborhood where overnight accommodations could be secured.

A certain class of motorists seem to resent more often than is known an attendant's letting a few drops of oil get on the surface of the car, or touching the finish with oily and dirty hands.

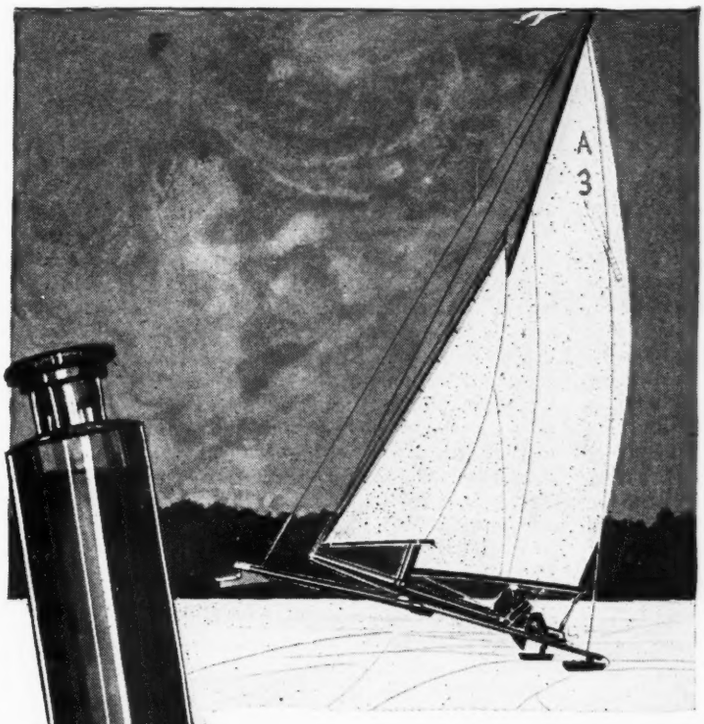
These points were brought out in many letters.

"The only criticism I have," wrote one man, "is that sometimes attendants neglect to wipe their hands before raising and lowering the hood, thus dirtying the handles, annoying to a motorist who likes to keep his car clean."

The letters bore out all previous ideas as to the extent personal service and courtesy play in getting station business. While the last question in the contest asked those replying to give personal experiences as to service, or lack of service, it was still surprising the number of people who said they went to one particular station because an attendant there had once done them what they regarded as a special favor.

A slant on selling other things than oil and gasoline at the station is contained in one letter in which the writer said, "I believe that a filling station should not sell candy, ice cream or other things like that, for the simple reason that the man driving the car probably stops for the children and forgets or just doesn't care for the other man waiting behind."

Perhaps the whole matter of station operation as the motorist looks at it can be summed up no better than by one contestant from Syracuse. He said, "To fill the tank with gas, the engine with oil, radiator with water, tires with air and the atmosphere with courtesy."



Frictionless

Independent bright stock, since its introduction to the trade, has won a host of jobbers to its use because of its unusual specifications and uniform high quality.

These jobbers have found that independent quality and consistent uniformity are valuable assets in building business volume.

There's a sound reason why you should investigate this new independent product, a reason that will be evident when you test the samples we will gladly send on request.

STANDARD "D"

Gravity	23- 25
Flash	520-530
Fire	590-600
Cold	15- 20
Viscosity @ 210	150-160
Carbon Residue	below 2%
Emulsion	O. K.
Color (In solution)	4- 4½

INDEPENDENT OIL AND GAS COMPANY
PRODUCERS AND REFINERS
KENNEDY BUILDING
TULSA OKLA.

Tools Carried off by the Thoughtless Cost Oil Marketers Money

By Ward K. Halbert
N. P. N. Staff Writer

CHICAGO, Nov. 15

PILFERING, or is it thoughtlessness, on the part of customers at service stations is a far greater cause of loss to oil marketing companies than the average executive imagines; at least that is the opinion of a few oil men who have taken the trouble to look into the matter more than superficially. One man in Chicago who is superintendent of city service stations for one of the biggest distributing agencies here says that petty larceny at filling stations in this town alone costs his firm thousands of dollars a year.

In this section of country little has been done by the oil men to guard against stealing or thoughtless carrying away of small articles from filling stations, except to have nothing around that is particularly attractive to the eye, for after all it is the pretty thing that the casual thief takes, not the valuable thing. More than one jobber has stated that the biggest part of the loss of articles can be attributed to women. One of them goes so far as to say that women take 90 per cent of the things abducted from service stations.

"Who is going to walk up to a woman as she steps out of a dressing room and ask her what she is carrying under her coat?" one oil company official inquires. "Such an act would be an insult to somebody's sister or wife or sweetheart, and in any special case it would be grounded on a suspicion. Every mistake would be a damage suit. So it is cheaper to let them appropriate what they want from the ladies' rest rooms and forget about it."

Men Take Tools

ONE of the most common things carried away by filling station customers is the air gage. Air gages are the most elusive things in the general filling station inventory, except gasoline that evaporates and vanishes away. There is one station operator on record who put in a stock of air gages and whenever somebody asked to borrow one he retorted by offering to sell one. But this project was not popular. Like the keeper of a cigar store who had matches only for sale, he was called a "tight wad" and made no friends by it.

Automatic air stands with a dial and an indicator, arranged so the customer can pre-determine his tire pressure when he connects the air hose, have done away with the carrying off of air gages at a great many stations. Then too, there is an air line nozzle with an air gage built in connection with it, and that little piece of equipment helps to keep air gages at home. It is worthy of mention in this connection however that Matt Petersen, 4254 Fullerton Ave., Chicago, has a new "home-spun" method that is effective:

Mr. Petersen operates two or three service stations on the North Side in Chicago and he witholds nothing that a motorist may ask for so long as it can be given profitably. He keeps air gages at his place for general community use, protected with a light chain and a metal tag like an ordinary hotel key. The tag carries Mr. Petersen's name and address. He has observed that customers carry them away sometimes but always bring them back. His theory is that motorists are not wilful purloiners but are simply careless with other person's things as they are with their own.

Ranking next to tire gages are pliers and wrenches. Men drive on the service station lot, rush into the office in a great hurry, borrow some tool and it never comes back. That is the way it usually happens. One Chicago filling station operator last year observed the repeated loss of expensive small tools in this way and ruled that no more expensive tools should be bought. "From now on" he said, we will buy the cheapest pliers and wrenches we can find for these careless customers to carry away". After buying a few cheap tools he learned to his astonishment that they were much easier to keep. Not being so desirable his customers did not covet them—so they politely returned them with thanks.

Buckets Wander Away

BUCKETS are desirable things to have under the seat of cars and trucks. M. R. Tennerstedt, a service station operator at 1700 Milwaukee Ave., Chicago, spent a good many dollars finding this out. It was not unusual at his place to have a motorist rush into the station, all out of breath, gasping his tale of woe about being out of gasoline about two blocks up the street. Mr. Tennerstedt was soft with them for a time. He used to sell them a gallon of gasoline at the filling-station price and give them each a 25-cent bucket or can to carry it away in. After a few months he ran out of cans.

These pedestrian purchasers always said, "thanks very much, I will drive right by with the can and fill up my tank," but for some reason about half of them never actually showed up. Now Mr. Tennerstedt has a stock of cans with a little advertising on them. They cost about a quarter in small quantities. Anybody who runs out of gasoline a few blocks away can take one of these with a gallon of gasoline for $1 plus the price of the gasoline. If he does not return, all right. If he does come back the dollar applies on the price of a fill of gasoline.

Ray Andrews of the Pennsylvania Oil Co., Madison, Wis., had tools carried away from his filling stations so much that he was obliged to tax the minds of his attendants to guard them. He holds every filling station manager responsible for the tools and equipment at his filling station, just the same as for the gasoline and lubricating oil. Andrews' men work three 15-hour days a week changing shifts at noon every day, and shift-changing time is also inventory time. The man in charge is held responsible for the tools that are missing, if any. The man starting to work assumes responsibility for what is there.

Individual Tool Kits

SINCLAIR Refining Co., at service stations and greasing places alike have been obliged to protect their tools by charging each man individually with what he uses. When a man starts to work for Sinclair he is issued a kit of tools to be his own until he leaves the company's employ or is promoted. They are not unusually costly tools nor yet cheap ones. The purchasing department selects them partly because they can buy them in quantity at a much reduced cost. At the end of every week each man's tool kit is inspected. The company replaces all broken tools but the man must replace the missing ones. Of course the company supplies tools to replace the missing ones and the employee pays for them at the company's

Honesty Gets Business

LONG ISLAND CITY, N. Y.—Gaining new customers through honest business dealings has confirmed the belief of D. F. Holmes, service station operator here, in that virtue as a business builder.

Recently a man drove into his station in a Ford coupe asking for 10 gallons of gasoline. The tank overflowed at eight gallons. The customer told Mr. Holmes that from then on he was his customer; that he (Mr. Holmes) was the first man who did not put 10 gallons into a nine-gallon tank.

wholesale price. Thus the man is not obliged to go to a hardware store and pay a profit frequently on tools that some customer has carried away.

Sinclair's worst problem has been its rest rooms. The company has always equipped its filling stations with toilet rooms and some additional lavatory facilities, but recently when they began building their elaborate "Greasing Palaces" in Chicago they included rest rooms in the plans that were indeed creditable. They thought it was necessary because it takes 15 minutes to half an hour to grease and oil a car thoroughly and they provided a pleasant place to wait.

Waiting Rooms Damaged

A. F. BUCK, superintendent of service stations, acknowledged recently that Sinclair Refining Co. had been obliged to change its plans about the ladies' rest rooms. Although it was meant to put rugs on the floors, none will be used. Those placed in the first waiting rooms are already spotted with chewing gum and burned with cigarette stumps.

Curtains from windows have been spirited away. Cushions from the chairs and scarfs from the tables have been "lifted" in some mysterious fashion. Towels in the wash rooms, (now that there are no linen ones left) are the ordinary paper kind. Soap dishes, mirrors, curtain poles and even pieces of the plumbing have gone the same way. At one station a black and gold sign over the door saying "Ladies' Rest Room" has been "cribbed" along with the rest.

"In the ladies' department," Mr. Buck says, with a faint tone of irony in his voice, "We are now putting up mirrors with four holes in them, bolted to the walls with bolts that go clear through to another room. We thought about having the better mirrors marked with the words "Stolen from Sinclair Refining Co.", in frosted letters. But we came to the conclusion that such a thing would not help matters. I really believe the marking would make them more desirable. People seem to be proud of their stealing rather than ashamed of it."

Fourth in Dixie-Belcher Extension

HOUSTON, Nov. 15.—The fourth important well in the Dixie-Belcher extension of the old Caddo, Louisiana field was completed Nov. 6 by The Texas Company, making approximately 2000 barrels initial production at 2209 feet. The well was No. 2 on the Curtis lease in 14-20-15, where No. 1 recently came in for about 2700 barrels and settled down to 1850 barrels daily. Other wells in the immediate area are Magnolia Petroleum Co.'s Wemple, recently completed for 600 barrels daily, and the discovery well of Victor Wenzel, and others, which is still making 250 barrels daily, 15 per cent water, after nine weeks. The area now under development is located between Oil City, on the west, and the towns of Dixie and Belcher, on the east.

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Just attach your check to this ad and return it to us now. $15 is the reasonable cost of all this valuable information. Synopsis sent upon request.

National Petroleum News
830 Caxton Building **Cleveland, Ohio**

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CORPORATION

NEW YORK LIFE BLDG. KANSAS CITY, MO.
KENNEDY BLDG. TULSA, OKLA.

Our Industry—A Page of Facts and Observations

National Petroleum News

By Paul Wagner

THE MARTIN ENGINEERING CO., with offices at Maracaibo and Caracas, has been organized as a branch of James F. Martin & Co., with headquarters at Tampico. James F. Martin, head of both organizations, has conducted a general engineering business in Mexico that was originally built up in connection with contracting in the Panuco and southern district oil fields. Later, when operations in the general Tampico district showed a slump, his business was extended into railroad contracting. It is reported from Tampico that Mr. Martin's Venezuelan concession permits his company to import free of duty all equipment necessary for its operations. In addition to pipe line and road operations, the contract business of Mr. Martin includes well drilling.

* * *

LOWER drilling costs in the territory west of San Angelo as compared with the Texas Panhandle area appeal to J. J. Gibson of Gibson Brothers, drilling contractors, who is making his headquarters at McCamey, in Union county, for the present. Only two sizes of casing are used in drilling Hurdle district wells, the 8-inch and 6-inch, as compared with 16-inch and 20-inch surface strings in the Panhandle field. Less casing and fewer tools being required in the West Texas territory costs are cut in many instances as much as 50 per cent.

* * *

THE West Texas land involved in the appeal case is located in the counties of Midland, Martin, Andrews and Ector, all of which have figured in the acquisition of large blocks of wildcat leaseholds in the Permian age salt basin now under exploration. Lease bonuses paid by ail companies for exploration rights in West Texas have, in many instances, exceeded the surface value of the land. For that reason it has become valuable, even though there has been no actual production of oil as yet in either of the counties named.

* * *

BARRY MILLER, Texas state senator from Dallas, is a man who in his political life has had the nerve—even in his stump speeches—to say the oil business is bearing its full share, and more, of taxation. He has been familiar with the industry's march of progress in Texas since 1902, when he worked with Clint Wood and Walter Cline of Wichita Falls in the caprock development of the Sour Lake field. That Gulf coastal field is now having a measure of "comeback" through the development of deep flank oil deposits offside the dome.

"In the old days," Mr. Miller said in a reminiscent mood the other night, "Sour Lake was just three miles from hell." But, he added, he wouldn't forget those days if he could, and if he could he would live them over again.

* * *

FRED PHILLIPS of Tulsa and W. J. Donovan, an associate, are making present headquarters at Abilene, Texas, and are preparing to spud in immediately an oil test on the Webb farm, sec. 2, block K, Texas & Pacific survey, in Fisher county. The Phillips-Donovan location is about eight miles northwest of the Jones county discovery well of the Phillips Petroleum Co., near the town of Thrift.

* * *

WHO said that corporations have no souls?

Here comes The Texas Co., at the request of the Humble, Texas, Independent school district paying $16,234.35 of its taxes three months before they come due as an accommodation to the school trustees.

When the school funds were found to be insufficient to pay expenses and the trustees asked taxpayers to help them by paying up as soon as possible, The Texas Co. was one of the first to respond. The oil company, under the law, had until Jan. 30, 1927, to pay.

* * *

TOM BRELSFORD, oil producer, of Eastland county, Texas, formerly was a Texas state senator. After eight or nine years he hopes, however, he will have "lived that down." Senator Brelsford, as he is still affectionately known, told a group of oil producers at Dallas recently that he used to think laws were immutable—like the Medes and Persians. Now he knows, he said, that the country must have some relief from an intolerable situation.

Relief must come, says Senator Brelsford, by educating the tribunal of last resort, by bringing intimate and actual conditions home to the common sense of the average man. He cited the manner in which railroad executives of the country are taking the public into their confidence through the great newspapers of the east; and he asked why the petroleum industry could not extend similar work to the end of clarifying public opinion.

With such a policy in effect, he suggested, we would not find a court saying "gas is oil," or making other unsatisfactory rulings.

Cut No. 450 differs from Cut No. 400 in that measurement is entirely mechanical, eliminating the possibility of inaccuracy due to the human element.

Refinements

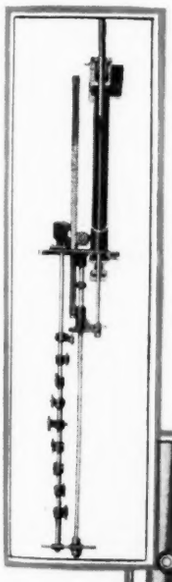
3. Only one drain outlet from the glass container—through the hose, itself—no inside drain back to weaken confidence.
4. Interlocking mechanism to automatically drain container when hose is locked for night.
5. Three sets gallon markers. One set always readable from any angle.
6. Arrow indicator on sliding discharge tube (Cut 450) to indicate accurate setting BEFORE serving.
7. Positive mechanical measurement (Cut No. 450) where customer preference or regulations demand.
8. Wet or dry hose (Cut 400—eye measurement) as desired.
9. Glass covered visible container with lighting attachment designed to flood light THROUGH the gasoline, thus enhancing its appearance.
10. Underwriters' Label (all models).

Principal, among all RAPIDAYTON'S outstanding features, is the sturdy construction and simplicity of operation. Many years of faithful, satisfactory service are assured.

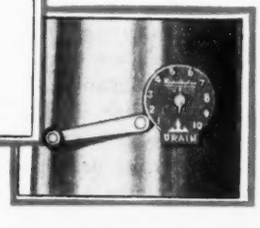
Get in touch with the RAPIDAYTON man in your territory or write the home office direct for complete details on the new refined visible models—Cuts No. 400 and 450 and other RAPIDAYTON equipment.

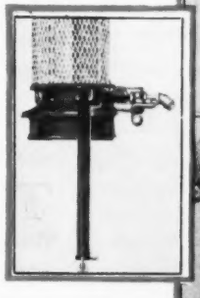
THE DAYTON PUMP & MFG. CO.
DAYTON, OHIO

Sales representatives in principal cities. Warehouse stocks at New York, Des Moines, Kansas City, Oklahoma City, Minneapolis, Detroit, Boston, Portland, Oregon and Richmond, Va.



The sight glass (below) shows the customer that every drop of gasoline has gone to his tank and is not trapped in the tube. There is no inside drain-back. All gasoline must pass through the glass base into the customer's tank. Draining of the visible container at right through the base drain (shown at the right) is automatic in the act of locking.

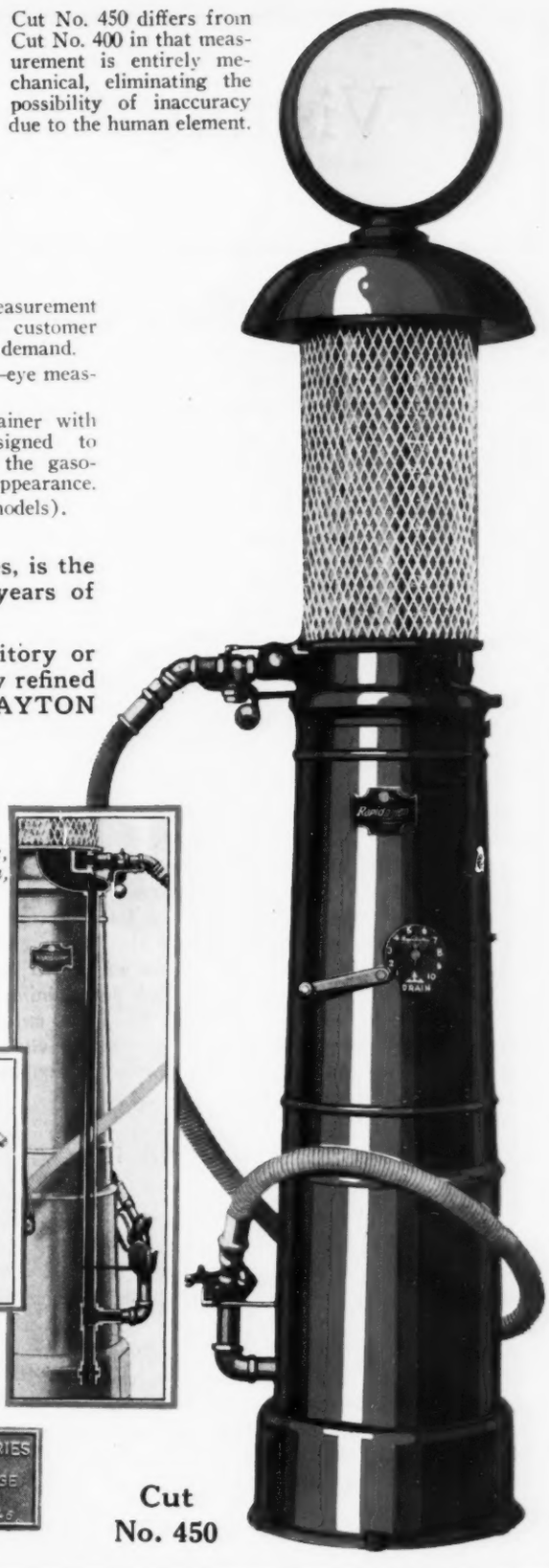




(Left) In the Cut No. 450 an adjustable discharge tube and positive quantity stops remove entirely the possibility of inaccuracy due to the human element. The tube is set by means of a crank and indicator. Extra gallons are left in visible container, available without interruption to refill—an important sales advantage.

Approved

UNDERWRITERS' LABORATORIES INSPECTED VISIBLE MEASURE DISCHARGE FOR HAZARDOUS LIQUIDS FOR USE OUTSIDE OF BUILDING No. 2 39 45



Cut No. 450

Rapidayton

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The Dayton Pump & Mfg. Co.
Dayton, Ohio
Gentlemen: Please mail me complete details of the new RAPIDAYTON visible models—Cuts No. 400-450.
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Address .....
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Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

Buying Crude on the Basis of Actual Value

THREE factors in the refining industry have brought about the condition that the Humble Oil & Refining Co. recognized when it scaled down the differential in price it would pay for crudes of higher gravity. That condition is increased yield of gasoline from comparatively heavy crudes.

The three factors that have brought it about are improved fractionation, cracking and proper use of natural gasoline. With the latest fractionating equipment, reboiling and so on, it is possible to get into the gasoline cut a good deal of fractions that formerly were left in the kerosene and some even in the gas oil. It is also possible to make a naphtha cut, or enlarge the gasoline cut to include the naphtha, that has a satisfactory chain of the higher boiling points, and supply the lower boiling fractions necessary by the addition of natural gasoline in the proper amount.

Cracking has made it possible to obtain a large yield of gasoline from the gas oil cut, from topped crude, or even from heavy crude oil and fuel oil. As the market for coke broadens and the demand for gasoline increases, it is reasonable to suppose that more and more of the heavy oils, like some of those produced in California, will be cracked, which will tend to bring the heavy oils more nearly on a par in value with those of higher gravity. The tendency of the new method of determining crude value is likely to be to flatten out to some extent the curve of prices posted for crude of various gravities. We think the Humble has made an important contribution to the refining industry.

A Refiner Feeling His Way

G. C. Davison, president of the Tri-State Refining Co., Kenova, W. Va. has a notion that he is now trying out on a laboratory scale, that Somerset crude can be dewaxed before it is run to the still. His idea is that the crude can be diluted to the proper consistency with naphtha to make it easily handled, chilled and dewaxed by centrifugal means or cold settling, and then the wax-free oil distilled.

The wax cracks very easily and he figures that by removing it before distillation he will minimize the danger of cracking which would more or less damage the oil for lubricating purposes. The diluting naphtha, of course, would be recovered in the distillation of the crude along with the virgin gasoline.

Another scheme upon which Mr. Davison is working, is a tube still to operate under vacuum. He has already designed a bubble tower which he says is being manufactured by the Graver Corp. Mr. Davison and D. T. Evans built the Tri-State refinery in 1924 as a 1000-barrel skimming plant to handle their Kentucky production. Mr. Evans managed the plant until he died a year ago and since then Mr. Davison, new to the refinery business, has been working to improve its operations and enlarge its capacity.

For one thing he has built a grease plant which is selling a lot of lubricants to the neighboring industries, coal mines and so on, and has recently bought the Higrade Oil Co. which operates five bulk stations. Mr. Davison is also the design of a cracking plant which he has not yet installed, however. Although new to the oil business, Mr. Davison has the ough, scientific training which has been mostly devoted submarine engineering.

Dephlegmation and Fractionation

A GOOD many refiners undoubtedly have suffered disa pointment in the results obtained from the installation towers in their plants because they have failed to note t differences in the meaning of the above two words. Qui often they are used interchangeably.

R. E. Wilson, on cross-examination in the trial of the su against the Patent Club defined clearly the meaning of ea of these words. He said dephlegmation is simply the act knocking back into the still the heaviest ends of vapors go ing over. Fractionation is the act of separating the vario fractions.

The reflux from a dephlegmator is a mass of hydrocarbon of various gravities and boiling points, all mixed togethe while the reflux from an efficient fractionating tower is com posed of only the very heaviest part of the oil that had bee vaporized, all the lighter parts having been progressivel condensed and the various cuts taken off, each consisting a product composed of fractions accurately assorted as t boiling point.

Mr. Wilson asserted that the Humphreys runback of th Burton process was a step ahead of the prior art becaus it not only dephlegmated the vapors from the cracking sti but also to a large degree fractionated them, or stripped them of the light ends, by returning them to the still coun ter current to the upward flow of the hot vapors.

Puts Out Special Refinery Number

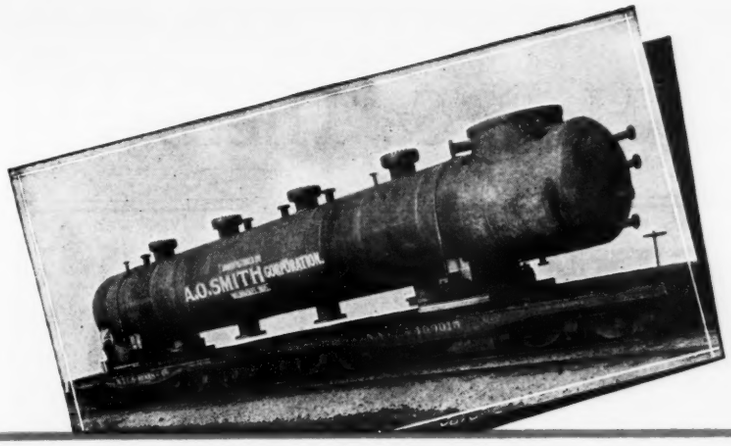
THE Eagle, monthly company magazine of the America Refining Co., Inc., Wichita Falls, Tex., appears in Oc tober as a special refinery number. Various parts of the re finery are described in simple language in articles written b the respective department heads, according to D. B. Kelley refinery superintendent. The crude stills, the pipe still, th cracking plant, rerun stills, continuous treating plant, powe plants and even the loading rack are discussed. The article are well illustrated with photographs.

W. S. Brown is managing editor of The Eagle and in special note he makes acknowledgement to John Allen of th renfiery for the idea for the cover design and to John Bed dow and Ralph Goode for their help in making the specia refinery issue a success.

Changes Gas Gravity Determination Method

F. G. YOUKER, general superintendent of Chestnut Smith Corp., Ranger, says the company has adopted th gravity balance for determining gas gravities in place of th gravity bottle method.

It might be well worth the refiner's while to consider th possibility of putting in a mixing plant and contracting fo the sale of Ethyl gasoline as an aid to his business of market ing in general.

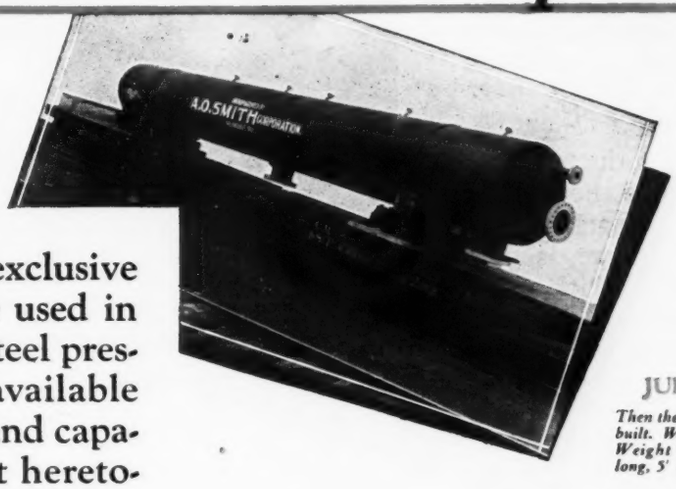


Picturing One Year of Progress

JULY 15, 1926

Largest ever built. Walls 3½" thick. Weight 268,800 lbs. 65' long, 8' diameter.

Any Wall Thickness Required!



MAY 30, 1926

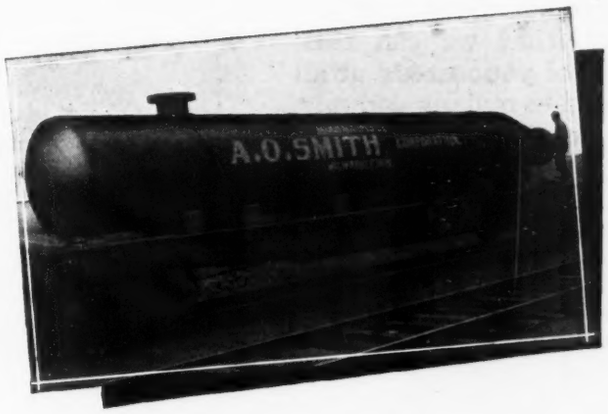
Then the largest still ever built. Walls 2⅝" thick. Weight 144,000 lbs. 65' long, 6' diameter.

JULY 25, 1925

Then the largest still ever built. Walls 2½" thick. Weight 76,000 lbs. 41' long, 5' diameter.

The entirely new and exclusive methods of manufacture used in the production of Smithsteel pressure vessels have made available for the oil industry sizes and capacities in such equipment heretofore considered unobtainable.

In step with the progress being made in refinery methods Smithsteel Cracking Stills are being supplied in ever increasing dimensions —"in any diameter, of any length, to withstand any specified pressures to meet all operating conditions."



A. O. SMITH CORPORATION

TULSA *Milwaukee, Wis.* LOS ANGELES

SMITHSTEEL CRACKING STILLS

Products that Satisfy

Satisfied Customers are the life of your business— ***and there is nothing that satisfies like real quality, at the right price.***

Humble Products "repeat" because their quality is right. Each one of them—and there is one for each lubrication need—has been carefully designed and prepared, and thoroughly tested to see that it meets the most rigid requirements.

Our line is complete, and our refinery facilities are such that we can take care of your needs at all times — making prompt shipments, in any quantity you may desire—a carload or a shipload—by rail or water, to any point on the globe.

Wire or write for samples and prices.

HUMBLE OIL & REFINING CO. HUMBLE OILS HOUSTON, TEXAS Reg. U. S. Pat. Off.

Humble Oil & Refining Co.

Houston, Texas
"Zero Cold Test Oils"
Producers—Pipe Lines
Refiners — Marketers

Here & There

National Petroleum News

Pacific coast delegation to petroleum section convention of National Safety Council: George F. Prussing (left) Union Oil Co., Los Angeles; F. A. Scofield (center) Associated Oil Co., San Francisco, and W. S. Grant, Union Oil Co., Los Angeles.

J. E. Bowman, who was formerly sales manager for The Cities Service Corp. at Fort Worth, Tex., is now with the Panhandle Oil Co. of Mississippi, with headquarters at Jackson, Miss.

F. B. Tilden, until recently with the Panhandle Refining Co., Wichita Falls, Tex., is now general auditor of the Panhandle Oil Co. of Mississippi at Jackson, according to C. H. Converse, superintendent of the latter company.

* * *

Victor H. Smith, vice president of the North American Car Corp., Chicago, sailed on Oct. 27 for Europe to interview several foreign buyers of American petroleum products for export. This is in line with the company's service in co-operating with the refiners in the transportation and terminaling of their products, according to Erwin R. Brigham, vice president.

* * *

Willard W. Cutler, Jr., Los Angeles, recently resigned as chief geologist of the Milham Exploration Co. and expects to do consulting work in California. Mr. Cutler is the author of "Estimation of Underground Oil Reserves by Oil Well Production Curves," published as bulletin 228 by the Bureau of Mines.

* * *

A. F. Garrett, assistant general manager of the Tidal Refining Co., returned to Tulsa Nov. 5 from a trip through Ohio and eastern marketing territory where he studied contract and other competitive conditions.

Herbert F. Miller, who has been in Los Angeles for several months representing Standard Oil Co. of New Jersey, marketing and refined oil purchasing department, returned to Tulsa Nov. 9, where he can be found at his old home desk in the Carter Oil Co. offices. Mr. Miller made many friends in southern California.

* * *

H. J. Scott, general sales manager of the Transcontinental Oil Co., has returned to Tulsa from New York and the company's eastern offices at Pittsburgh. Mr. Scott attended the convention of the National Petroleum Marketers Association at Atlantic city in October.

* * *

L. V. Stanford, vice president in charge of the export division of the Sinclair Refining Co., New York, spent part of the week of Nov. 2, in Tulsa conferring with W. R. Tracey, in charge of the Dallas office of the company, and A. T. Scherer, in charge of the Tulsa office.

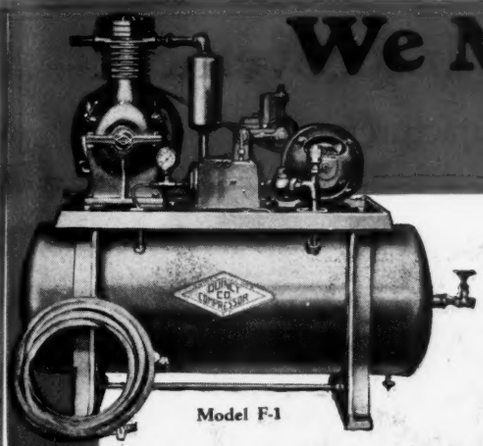
* * *

G. B. Williams, sales manager, Johnson Oil Refining Co., Chicago Heights, Ill., and H. A. Jones, manager of the Pittsburgh office, attended the N. P. M. A. convention at Atlantic City recently.

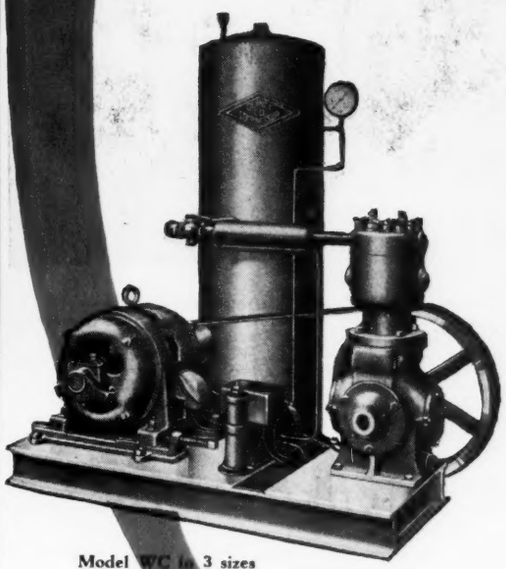
* * *

Sterling L. Beck, who has represented Fred G. Clark Co., Cleveland, in Ohio territory for some years past, is now with Wall & Steigerwald, Inc., Cleveland.

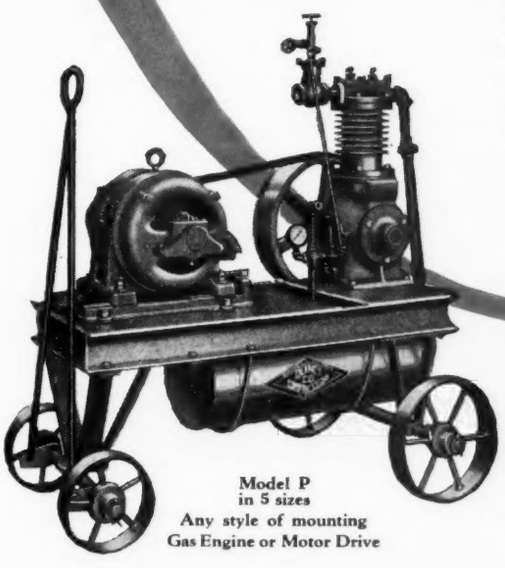
We Make the Compressor You Need!



Model F-1



Model WC in 3 sizes



Model P
in 5 sizes
Any style of mounting
Gas Engine or Motor Drive

K302

PRACTICALLY every man has his life work; something into which he puts his soul and he builds more for the final results than for gain. Here in Quincy we have worked for years fashioning metal and mechanical principles into Quincy Air Compressors. Because we've been willing to sacrifice a bit of profit to build true worth, Quincy Compressors hold a reputation for service and long life equalled by none.

Yearly the Quincy line has increased to meet demands. Today there are few air jobs that Quincy can't do. What are your requirements? Air service for garage or service stations? A compressor for auto laundry, paint spraying, pneumatic tools, sand blasting? No matter, we have a Quincy Air or Water Cooled Compressor ready to shoulder the responsibility of doing your work satisfactorily and economically.

We can't tell the entire story of Quincy quality and service here. But the coupon, just below, signed and mailed, will place your name on the list to receive Quincy literature. Complete details of construction, size, adaptability and price will be sent you without charge. Even if you are not in need of a Quincy now, these facts will save you money in the future.

Quincy
Air Tower

Quincy Compressor Co., Quincy, Ill.

Formerly Wall Pump and Compressor Co.

Quincy Compressor Co., 223 Maine St., Quincy, Ill.

Please add my name on your mailing list to receive the complete story of Quincy Compressors.

Name .....

Address .....

City ..... State .....

SEND THIS COUPON

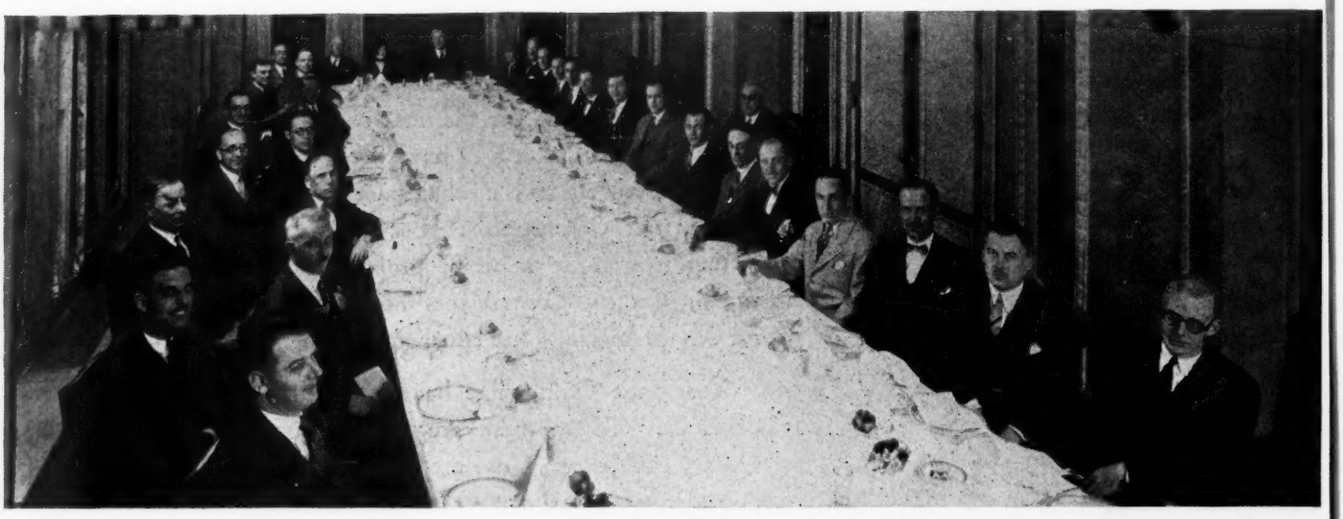
QUINCY COMPRESSOR CO.

Quincy QUINCY ILLINOIS QUINCY CO. COMPRESSOR U.S.A. **Illinois**

New Equipment for Plant Improvement

Personal Notes of the Manufacturers

National Petroleum News



The Graver conference on the Jenkins process, taken at dinner. Right to left those in the picture are: T. C. Banta, Graver chief engineer; P. A. Thompson, New York sales office; L. H. Welling, Graver sales manager; H. E. Clark, Houston sales office; L. W. Wichman; F. W. Sweeney; J. G. Danforth, labortory; J. J. Felsecker; C. L. Marner, Tulsa sales office; R. T. Phillips; N. H. Ranstead, Jenkins Petroleum Process Co., E. F. Moore, Jenkins Petroleum Process Co.; J. J. McKeague, assistant secretary-treasurer, Jenkins Petroleum Process Co.; W. F. Graver; T. S. Black, secretary-treasurer Jenkins Petroleum Process Co.; Mrs. Beck; P. S. Graver; Miss Arline; U. S. Jenkins, inventor of the Jenkins Process; K. W. Bartlett, the Graver Corp.; E. P. Brown, assistant to president and chief technologist the Jenkins Petroleum Process Co.; C. L. Saunders; W. M. Gross; S. B. Beecher, the Graver Corp; E. S. Thayer; L. A. Wilkins, the Graver Corp.; O. C. Smith, the Graver Corp.; William A. Briska, the Graver Corp.; E. R. Root; Richard Mayser, assistant sales manager the Graver Corp.; J. C. Winslow, advertising manager the Graver Corp.

Graver-Jenkins Organizations Study Jenkins Process

CHICAGO, Nov. 11.—About 30 men, engineers and salesmen, of the Graver Corp. and the Jenkins Petroleum Process Co. gathered here Oct. 25 and for six days studied thoroughly from a mechanical, commercial and sales standpoint, the design, construction, operation and possibilities of the Jenkins cracking process.

The purpose of the conference was stated by W. C. Black, president of the Jenkins company, and P. S. Graver, Graver Corp. The ground which the conference was to cover was outlined by E. P. Brown, assistant to the president and chief technologist of the Jenkins company.

The inception of the process was outlined by U. S. Jenkins, the inventor and vice-president of the Jenkins company. The early commercial development of the process was traced by Mr. Black. The conference, many members of which were not thoroughly familiar with the oil industry, was given a brief but comprehensive outline of the industry including origin, geology, production and refining by Mr. Brown.

The marketing branch of the business was discussed and explained by T. S. Black, secretary-treasurer of the Jenkins company.

The second day of the meeting was devoted to discussion of the design of the Jenkins equipment. Mr. Brown gave a general description of the apparatus used in the process. Starting with an explanation of the theory of cracking, Mr. Brown discussed heat transfer, water tube boiler design, refluxing, flushing, rectification and condensation. B. P. Lientz, of Kansas City, described the design and operation of the Lientz furnace and the Lientz gas recirculating and air pre-heating system. L. A. Wilkins, Graver engineer, talked on piping, valves, foundations and factors of safety.

Control instruments were described and discussed by C. L. Saunders of the Brown Instrument Co., insulation by a Johns-Manville engineer; pumps by E. R. Ernst of the Worthington Pump & Machinery Corp. The day ended with dinner at the Sherman Hotel and a theater party.

Oct. 27 was devoted to construction and operation; details of the former subject being handled by Mr. Wilkins, F .W. Miller of the manufacturing department of the Graver Corp. and L. W. Wichman.

All phases of operation were discussed by O. C. Smith, Graver Corp. The session Oct. 28 was devoted to consideration of performance, competitive processes and sales, the speakers being J. J. McKeague, assistant secretary-treasurer of the Jenkins company, E. F. Moore of the Jenkins company; T. C. Banta, Graver engineer; Mr. Brown, K. W. Bartlett of the Graver Corp., J. C. Winslow, advertising manager, and L. H. Welling, sales manager.

Oct. 29 various sales problems were discussed by C. L. Marner of the Tulsa office of the Graver Corp., P. A. Thompson of the New York office, R. D. Mayser, assistant sales manager W. M. Gross and Mr. Welling. The Jenkins unit itself was discussed from three view points; that of the technologist by Mr. Brown; that of the banker by W. F. Graver and that of the patent situation by W. C. Black.

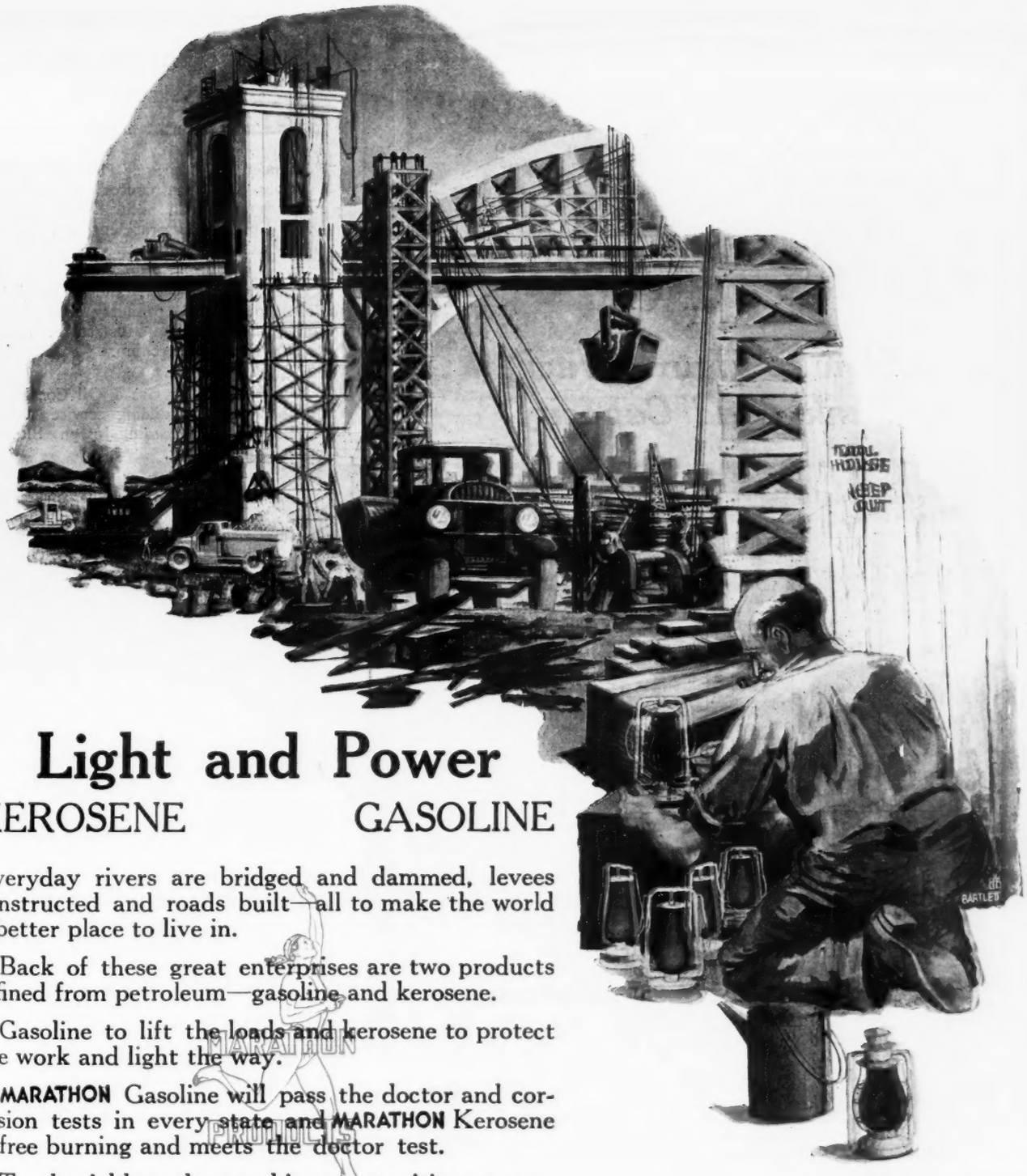
Oct. 30 was devoted to visits to the plants of the Bartles-Maguire Oil Co. and the Graver Corp. at East Chicago and closing remarks by P. S. Graver.

* * *

A. Y. McDonald Manufacturing Co., Dubuque, Ia., has developed a new device for use on storage tanks which prevents the accumulation of water at the bottom of the tanks and prevents freezing of the valve. It is known as the Anti-Freeze Drain Valve and is claimed to be freeze proof, leak proof and theft proof. A padlock prevents theft.

* * *

The Edward Valve & Mfg. Co., East Chicago, Ind., manufacturer of high pressure and high temperature valves specializing in forged steel valves for refinery service, has opened new and larger quarters for its Houston representative, The Maintenance Engineering Corp., 2000 Harrington St.



Light and Power

KEROSENE GASOLINE

Everyday rivers are bridged and dammed, levees constructed and roads built—all to make the world a better place to live in.

Back of these great enterprises are two products refined from petroleum—gasoline and kerosene.

Gasoline to lift the loads and kerosene to protect the work and light the way.

MARATHON Gasoline will pass the doctor and corrosion tests in every state and **MARATHON** Kerosene is free burning and meets the doctor test.

To the jobber who sees his opportunities, we present **MARATHON** Gasoline and **MARATHON** Kerosene as "Best In The Long Run".

TRANSCONTINENTAL OIL CO.

Producers, Refiners, and Marketers of Marathon Quality Products

GENERAL OFFICES *Ritz Building* TULSA, OKLA.

Sales Offices

Atlanta, Chicago, Des Moines, Fort Worth, Muskogee, Bristow, Pittsburgh, Sioux City, Tulsa

Refineries

Boynton, Bristow, Fort Worth

Warehouses at convenient shipping points.

How to Figure Truck Tank Load Capacity

In determining the capacity of a tank to use on a certain truck the general rule is 300 gallons capacity to each one ton capacity of the truck. Local conditions, however, may permit slight variations from this rule. The following table may aid you in determining the capacity of tank desired:

Capacity of Truck Tons	Capacity of Tank Gals.	Weight of Gasoline in Tank Lbs.	Number of Cans Possible in Can Racks	Weight of Load in Can Racks Lbs.	Possible Total Load Lbs.
1	300	1980	12	1200	3180
	350	2310	12	1200	3510
1¼.....	400	2640	12	1200	3840
	450	2970	14	1400	4370
1½.....	500	3300	14	1400	4700
	600	3960	16	1600	5560
2	700	4620	16	1600	6220
	750	4950	18	1800	6750
2½.....	800	5280	18	1800	7080
	900	5940	20	2000	7940
3	1000	6600	20	2000	8600
	1000	6600	20	2000	8600
3½.....	1250	8250	24	2400	10650
	1500	9900	28	2800	12700
5	1800	11880	28	2800	14680

Our latest catalog contains valuable information concerning truck tanks and their operation.

Write for it today.

The Youngstown Welding Co.

Welders Since 1912

Youngstown, Ohio, U. S. A.

DRAINS LIKE A FUNNEL

WELDCO TRUCK TANKS

TRADE MARK REG. U.S. PAT. OFF.

Some of the chapter headings of OIL AND GAS PRODUCTION by Johnson and Huntley, are:

Varieties of Oil and Gas
Pressure in Oil and Gas Reservoirs
Locating Oil and Gas Wells
Oil and Gas Well Drilling
Valuation of Oil and Gas Properties

Messrs. Johnson and Huntley are authorities on the subject of production. Their book sells for $4.50. Let us take care of your order.

National Petroleum News

801 Caxton Bldg. Cleveland, Ohio

New Oil Station Construction

Spencer, Ia.—Sprague-Denny Oil Co., a newly organized concern with headquarters here, will build filling station. Q. S. Sprague is president and W. C. Denny is vice president.

* * *

Houston, Mo.—Mr. and Mrs. John Eicks purchased property five miles northeast of Cabool for store, filling station, and tourist camp.

* * *

Ely, Minn.—Ely Gas & Oil Co., headquarters here, is building service station at Tower, Minn., said Joseph Slogar, owner and manager.

* * *

Deer River, Minn.—Gilberson Motor Sales Co. building filling station, to handle Standard Oil Co. of Indiana products.

* * *

Eureka, Kans.—Marland Oil Co., and Manhattan Oil Co. are each building service stations here.

* * *

Minneapolis, Minn.—N. Ridker will build service station at Penn ave. and Willow St.

* * *

Ashland, Wis.—G. C. Bielenberg, of the B & M Garage, will build filling station.

* * *

LaGrange, Tex.—Mrs. Frances Dolezal bought property for filling station.

* * *

Tekamah, Neb.—Standard Oil Co. of Nebraska will erect service station.

* * *

Leavenworth, Kan.—Standard Oil Co. of Indiana to erect filling station.

* * *

Sandusky, O.—Columbia Refining Co. seeks permit for filling station.

* * *

Hutchinson, Kan.—Charles Pate to build filling station on 4th Ave.

* * *

Olathe, Kans.—E. E. Hight to build service station on Catalpa St.

* * *

Tyler, Tex.—Gulf Refining Co. bought property for service station.

* * *

Dunkirk, O.—F. E. Sampson, grocer, is building filling station.

* * *

Dakota City, Neb.—Louis Kilmer is building filling station.

* * *

Hereford, Tex.—The Texas Co. is erecting service station.

* * *

Montrose, Ark.—W. W. Guise completing filling station.

* * *

Allen, Okla.—Harvey Butler completing service station.

* * *

Fairmont, Minn.—Filling and bulk station will be built there by Peoples

Co-Operative Oil Co., which has stations at Jackson, Windom, Sherburn, Triumph and Dunnell.

* * *

Okabena, Minn.—Farmers Elevator Co. is contemplating erection of filling station.

* * *

Bucyrus, O.—Standard Oil Co. of Ohio will build service station.

* * *

Copeland, Kan.—L. F. Lahmeyer is building service station here.

* * *

Lytton, Ia.—Dixon Lumber & Coal Co. building filling station.

* * *

Newark, O.—Pure Oil Co. bought property for filling station.

* * *

Georgetown, Tex.—The Texas Co. is completing service station.

* * *

Irving, Kans.—Earl Wilson purchased site here for filling station.

* * *

Davenport, Ia.—Arrow Petroleum Co. to build service station.

* * *

Higginsville, Mo.—Everett Oliver will build filling station.

* * *

Pittsburg, Kans.—Neal Walker to build filling station.

Phillips Buys 700 Tank Cars

TULSA, Nov. 12.—Phillips Petroleum Co., Bartlesville, has ordered 700 tank cars for crude service out of the Panhandle. All cars are to be of 10,000 gallons' capacity and to be equipped with steam coils. The order was placed through Tulsa sales offices of the Standard Tank Car Co. Construction of the cars will be begun immediately at the Sharon, Pa., works of the company.

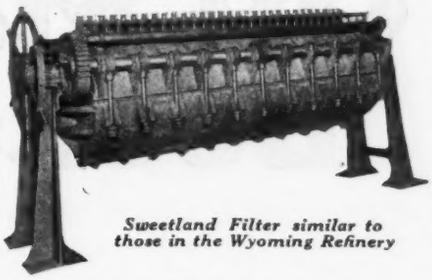
Reclaims Crankcase Oil

TULSA, Nov. 12.—The Wax Base Lubricating Oil Co. has constructed a plant for reclaiming crank case drainings at Sand Springs. After eliminating moisture and dirt, the oil is distilled to remove gasoline. The reclaimed oil is compounded to specification after treatment and resold for auto lubrication. Crankcase drainings are being purchased from stations in Tulsa and Sand Springs.

SHELBY, MONT.—Operations in the Kevin-Sunburst field of Montana were carried on to the tune of sniffles and the clink of the remedial glass-full because of cold weather and snow which fell on Sept. 15 and 16, according to Ernest A. Hanson, associate petroleum engineer of the U. S. Geological Survey here.

TULSA—H. R. McCracken, general manager of the United Producers Pipe Line Co., Transcontinental affiliation, was in Tulsa Friday from Fort Worth, general headquarters of the United company.

Filters for the Contact Process



Sweetland Filter similar to those in the Wyoming Refinery

THE Producers and Refiners Corporation, Parco, Wyoming, uses two Sweetland Filters on lubricating oils.

This is one of the many instances where the contact process has been made practical by the use of Sweetland Filters.

UNITED FILTERS COMPANY

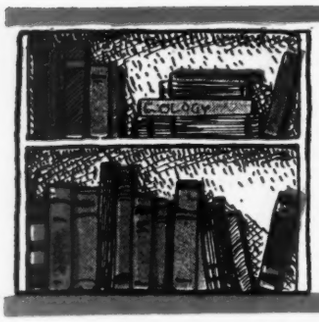
Hazleton, Pa.—Los Angeles Office, Central Building
Other Offices in Chicago, New York, Salt Lake City
Export Office: 25 Broadway, New York — Code Address: Unifilter, New York

We Solicit Your Inquiries On High Grade Gulf Coastal Lubricating Oils

200 to 2000 Viscosity
Pale and Red
ZERO COLD TEST

Shipments in Tank Cars, Compartment Cars and Steel Drums.

KEEN & WOOLF
OIL COMPANY
Refinery on the Ship Channel
HOUSTON TEXAS
REFINERS FOR JOBBERS



Oil Man's Bookshelf

THE appetite for more knowledge comes with feeding the brain. We rise from a good book with an appetite for more.

The biggest men in the country are great readers. They read and register that which helps them.

The OIL MAN'S BOOKSHELF will help you select books on oil that you can read with the greatest profit.

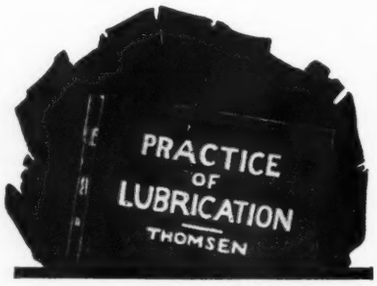
DAY'S HANDBOOK of Petroleum

In this Handbook you consult with 16 of this country's best oil experts on your business. The work is in two volumes and covers the following subjects—each by an oil expert:

Vol. I—Description of every oil field known; How to survey oil lands; Drilling methods; Petroleum and natural gas statistics; Transportation problems; Complete analysis of petroleum to hydrocarbons; Testing methods; Vapors in natural gas, etc.; Preparation, testing, uses of asphalt; Oil shale. 964 pages.

Vol. II—Refining, plant layout for various oils, specifications for tanks, stills, condensers, agitators, filter presses, etc., refinery operation, fire prevention; Cracking processes; Use of fuel oil, oil burner installations; Internal combustion engines; Lubrication; Oil pipe standards and uses; Tables. 1006 pages.

A very valuable book for reference, because it deals with every aspect of petroleum. The 2 volumes contain 1970 pages, $15, or you can order one volume at $8.



How to select, how to apply, and how to use lubricants is thoroly discussed in "Practice of Lubrication," by T. C. Thomsen, consulting engineer.

The subject of lubrication is so intimately connected with the mechanical and operating conditions of engines or machinery; this book presents for each type of engine and class of machinery, the "technical background" necessary to determine the character of the oils required to give the best service.

It points out the conditions under which lubricants have to work for particular types of machinery and the influences to which they are subjected during use.

"Practice of Lubrication" is a thorough and exhaustive treatment of every phase of lubrication.

610 pages, 227 illustrations—$6.00.

GASOLINE and OTHER MOTOR FUELS

Practically every process of making gasoline and other important motor fuels is described in "Gasoline and Other Motor Fuels" by Carleton Ellis and J. V. Meigs, Consulting Chemists.

Here's the Table of Contents:

Mixed Fuels; Testing of Motor Fuels; Gasoline Refinery Practice; Refining Methods; Sulphur Removal, Chemical Treatment, Distillation; Forwood's Processes; Distillation Under Pressure; Cracking in Stills Under Pressure; Burton Process; Coast's Processes; Cracking Heavy Oils in Liquid State; Tube and Retort Cracking in Vapor Phase; Hall's Processes and Methods; Rittman Process; Processes Using Steam; Cracking in Presence of Hydrogen, Hydrocarbon and Other Gases; Chemical Methods of Cracking Oils; Cracking and Distilling by Means of Fused Baths and Indirect Heating Means; Cracking with Aid of Internal Heat; Cracking by Electrical Methods; Condensation of Hydrocarbons from Gases; Benzol; Use as Motor Fuel and Manufacture; Alcohol as Motor Fuel; Shale as Source of Motor Fuel; Pyrogenetic Treatment of Asphalt.

728 pages — 206 illustrations — $10.

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National Petroleum News,
874 Caxton Bldg., Cleveland, Ohio.

I want the books checked below. Enclosed is check or money order for $_____

- ☐ *Day's Handbook of Petroleum.*
- ☐ *Practice of Lubrication* by Thomsen.
- ☐ *Gasoline and Other Motor Fuels* By Ellis and Meigs.

NAME _____

Address _____

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_____

ON THE LAZY BENCH

National Petroleum News

Now Sam Knows Why

A certain dusky promoter was hailed into court charged with trying to sell life insurance without a license.

"Now, Sam," said the judge severely, "Don't you know you can't sell life insurance without a license?"

Sam's eyes widened as a great light dawned upon him.

"Well, dawgone me! Ah been wondering why ah couldn't sell no insurance."

—The Weekly Exhaust

◈ ◈ ◈

Not as the Driller Would Write It

"Write me a story," said the teacher, "that contains some reference to religion, to modesty and to nobility. And it must be short."

Ten minutes later Johnny raised his hand. "Well, Johnny, let's hear what you have written."

And Johnny read: "My Gawd," said the countess, "take your hand off my knee."

—Bridgeport Driller

◈ ◈ ◈

An Englishman, hearing an owl for the first time.

"What was that?" he asked.

"An owl," was the reply.

"My deah fellah, I know that, but what was 'owling?"

—Skelly Service.

◈ ◈ ◈

By Cracky!

Here's a word that'll crack yer jaw,
Dazzle yer Dad and astonish yer Maw...
It never is heard and seldom is seen,
This "HEXAMETHELENETETRAMINE."

—Isotopics

◈ ◈ ◈

"I want to get a good novel to read in the train—something pathetic," said a woman to a book salesman.

"Let me see. How would "The Last Days of Pompeii do?" asked the salesman. salesman.

"Pompeii?" I never heard of him. "What did he die of?"

"I'm not quite sure, ma'am," replied the salesman, "Some kind of eruption, I believe."

—The Oil Can

◈ ◈ ◈

"Can you give a good description of your absconding cashier?" suavely asked the detective.

"We'ell," answered the hotel proprietor, "I believe he's about 5 feet 5 inches tall and about $7,000 short."

—Union Oil Bulletin.

Putting One Over

The girl about to travel alone was warned not to talk to strange men. At the station, the conductor asked: "Where are you going?"

"To Detroit," she answered, so he put her on the Detroit train.

As the train pulled out she looked back and said:

"Ha, ha, I fooled him that time. I'm going to Chicago."

—The Oil Can

◈ ◈ ◈

Willing to Help

The tourist rushed into the country store: "I wanna quart of oil, some gas, a coupla spark plugs, a timer, a five gallon kerosene can and four pie tins." "All righty," replied the enterprising clerk, "an you kin assemble 'er in the back room if ya wanta."

—A Line o' Type or Two

◈ ◈ ◈

Thrush: "Heard from Woodpecker since he went to Arizona?"

Wren: "He died."

"What of?"

"Concussion. He tried to drill for a worm in the Petrified Forest."

—Union Oil Bulletin.

◈ ◈ ◈

Bluffing

Chemistry Professor—"If H2O is water, what is CH2O?"

Student—"Sea Water."

—Isotopics

◈ ◈ ◈

"Say!" yelled the Chief of Police, "What do you mean by speeding along Park Ave. like a mad man? You'll kill somebody. Why in blazes don't you use your noodle?"

"Noodle!" gasped the man, "Where in the heck is the noodle? I pushed and pulled and jiggered every darn thing on the dashboard, and I couldn't stop her."

—The Oil Can

◈ ◈ ◈

A man was going round a golf course, accompanied by his wife.

He got into a bunker, and after his forty-seventh shot his wife said, "If you go on like this, everyone'll think you're working here."

—Union Oil Bulletin.

◈ ◈ ◈

He heeded not the traffic cop.
He raced ahead, pell-mell,
So the doctor told the sexton,
And the sexton tolled the bell.

—Skelly Service.

ALL-IN-1 FOLIO

$24.00
Less 10% for cash

Closed, 301 is a handsome Portfolio of selected, 5 oz., black cowhide. Open however, it is an efficient, attractive Display Case, containing 18 four ounce cut-bottom bottles with metal capped corks, and 6 one ounce squat grease jars. There are no trays to lift out, no metal clips to break the bottles. The flaps are lined with washable Keratol, and the samples backed against red plush. There is also an ample pocket for order book and literature. Satisfaction is guaranteed. Your name embossed in gold *free*.

Other Styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware KANSAS CITY, MO.

"CUT OIL"

is a problem in CHEMISTRY

An "emulsion" represents a condition of a liquid which can be fully, scientifically and economically corrected by use of the chemial process. Use TRET-O-LITE process when you have cut oil and tank bottoms that require treating.

Wm. S. Barnickel & Co.

St. Louis, Mo.

Tret-O-litE

Reg. U. S. Pat. Off.

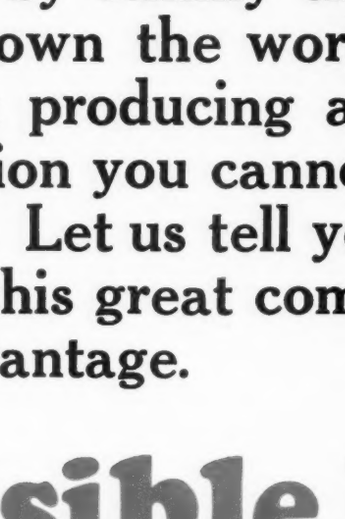
Dependability

The Fry Visible Pump—known the world over for its dependability—operated by Jimmy the Courtesy Man—known the world over for his profit producing ability—is a combination you cannot afford to overlook. Let us tell you how you can use this great combination to great advantage.

Fry Visible Pump

Fry's ever increasing volume of sales tells the story

GUARANTEE LIQUID MEASURE COMPANY, Rochester, Pa.
Fry Equipment Co., Ltd., 401 Royal Bank Building, Toronto, Ontario



Jimmy—the Courtesy Man

Refinery - Tank Wagon Markets

National Petroleum News

Exporters Buy Gasoline In Mid-Continent; Distillate and Kerosene In Demand

Staff Special

TULSA, Nov. 13

PURCHASE of approximately 1,500,000 gallons of high gravity gasoline by exporters from several north Texas refiners, the long expected pickup in stove distillate demand and some export buying of kerosenes in north Texas furnished the high points in the Mid-Continent refinery market this week.

While refiners for the most part reported their gasolines moved out steadily, they said the continued uncertainty over the crude structure prevented any heavy or concerted jobber buying. Prices on almost all refined gasoline moved ⅛ to ¼ cent lower during the week.

Since the north Texas refiners have been relieved of their contracts with the Standard Oil Co. of New Jersey, they have managed to keep most of their high gravity gasolines moving either to export or to the domestic trade, although at times they have been considerably below the usual eighth of a cent differential under Group 3.

One large Independent exporter this week closed a contract with a Texas refiner for approximately half a million gallons of 64-66, 375 end point gasoline for shipment over the rest of the year at 10 cents per gallon. This refiner has been closed down, but will begin operating within the next two or three days. Two other export representatives were able to pick up approximately a million gallons more from various factors, all of the purchases being at 10 cents, with some permitting shipment over the remainder of the year.

Oklahoma Refiners Left Out

OKLAHOMA refiners confined their activities primarily to getting domestic business, and speculating on what the Prairie Oil & Gas Co. would do with crude prices. With the crude prices already lowered in north Texas, and 1/10 cent difference in freight rates to the Gulf, Oklahoma refiners have had no opportunity to compete with these in north Texas.

Prices of 58-60 U. S. Motor were 9¼ to 9½ cents Monday, with almost all the larger refiners asking the higher price. Two or three smaller refiners Tuesday began taking some business at less than 9¼ cents. Later in the week other refiners lowered their prices and by the end of the week the bulk of U. S. Motor sales were at 9 to 9¼ cents.

Lower gravity gasolines moved downward in sympathy with U. S. Motor. Mild weather through most of the consuming territory has held up sales for the 450 end point gasolines fairly well. Since jobbers have been buying only in small quantities and for rush shipment they have not had to speculate on the weather to any large extent when buying the lower gasolines.

On the other hand several refiners reported their orders for 60-62, 400 end point and 64-66, 375 e. p. gasolines had increased, but apparently not sufficiently to hold prices unchanged over the week. The 60-62 gravity gasoline sold at 10 cents before Saturday, although a few refiners continued to get as much as 10¼ cents from their trade. The 64-66 gravity gasolines were moving mostly around 10½ cents with some selling at 10⅜ cents.

Domestic Sales Better

THE export buying in Texas was sufficient to strengthen domestic sales of the higher gravities. Several factors, both marketers and refiners, reported Saturday that no 64-66, 375 e. p. gasoline was available in Texas at less than 10⅜ cents for domestic shipment. One refiner said his domestic trade has picked up within the past two or three days, orders being in some instances for as many as 10 cars whereas he formerly has been able to book only one- to five- or six-car orders.

One jobber gave an Oklahoma refinery salesman a good summary of the present attitude of jobbers with reference to the whole gasoline list. The salesman visited the jobber's stations with the jobber to ascertain goods he might need. After the trip the jobber said, "I'm just where I want to be now. I do not have any gasoline in storage except for immediate needs, and I'm going to keep buying for immediate needs only until I've made up my mind the market is on the bottom and that the crude situation has become settled. Then I'll be in the market for a considerable quantity."

The result of the salesman's visit was an order for a small quantity of a special product the refinery is making for that jobber.

Natural gasoline remained steady until late in the week. Then Grade AA became more plentiful in Oklahoma while Grade A remained relatively scarce. Grade BB also was more freely offered but Grade C remained as scarce as gold coins during the war. At least two companies continued to make occasional purchases of the BB and C grades.

The natural gasoline situation in Texas was unchanged. Material was hard to find. One Oklahoma factor sent inquiries to Texas manufacturers for some Grade BB and Grade C, but was unable to find more than occasional cars at any price. As in Oklahoma, more Grade AA was available there than were any of the other grades.

Kerosene Buying Lags

KEROSENES in Oklahoma were not in demand this week, with the result that prices moved lower. Some 41-43 water white kerosene was sold to marketers as low as 6¼ cents per gallon, although several refiners continued to get from 6½ to 6¾ cents, and one said he was still getting occasional orders at 7 cents.

Most of the trade here apparently believes that if kerosene prices go much lower, there will be some export buying. There have been reports that one company has been contemplating the purchase of some material in Group 3 if the price gets to 6 cents. This company is known to have bought some kerosene in Texas at that price.

Demand for distillates had been low for the last six or eight weeks, but about the middle of this week orders began to come in and prices moved fractionally higher. One refiner who had moved some 38-40 straw distillate at 5 cents because he had already loaded, moved his price back to 5¼ cents for the untreated material, and 5¾ cents for the treated stock. Other refiners were getting from 5¼ to 5½ cents for their material and inquiries continued good as the week closed.

Gas oil shipments also have held up well and prices have been unchanged for several weeks. Some 32-36 gas oil has been sold out of north Texas at 4

(Continued on page 117)

A Complete Line of Petroleum Products from One Source

WAVERLY can supply your entire requirements of Petroleum Products, and all these products will be shipped to you from one source. This means that you can do your buying in car load lots—not a carload of one product, but a carload of assorted products.

A partial list of Waverly items is shown in the column to the right, and below you can see some of the various styles and different sizes of Waverly containers—ranging from the smallest can to a tank car.

Distributors who are interested in handling a complete line of petroleum products of well-known quality that can be shipped from one source are invited to write for the Waverly Plan of Selling. An inquiry involves no obligation whatever.

Waverly Oil Works Co.
ESTABLISHED 1880
5411 FIFTY-FOURTH STREET
PITTSBURGH, PA.

Waverly
"ALL PENNSYLVANIA"

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Turpentine Substitute
Illuminating Oils
Fuel and Furnace Oils
Tractor Distillate
Steam Cylinder Oils
"ALL PENNA" Auto Oils
"ALL PENNA" Chatterless Ford Oil
Chatterless Base for Ford Oils
"ALL PENNA" Tractor Oils
Industrial and Mill Oils
Castor Machine Oils
Tempering Oils
Cup and Fibre Greases
Axle-Gear Greases
"Gear Chase" - Trans. and Diff. Greases
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Pressure Lubricants
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Cutting Oils - Mine Car Greases

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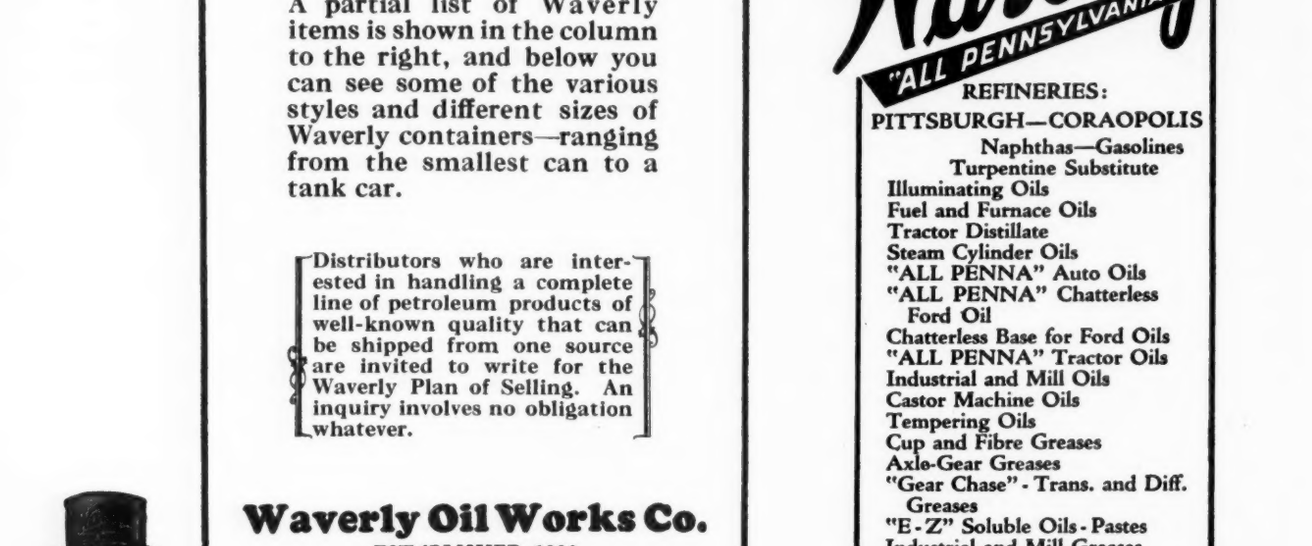
Industrial and Automotive Lubrication Manual and Charts

OFFICIAL PERMIT NO. 11.
Guaranteed 100% PURE PENNSYLVANIA OIL
PENNSYLVANIA GRADE CRUDE OIL ASS'N.



Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California and New England

GASOLINE AND NAPHTHA

	Prices Nov. 15	Prices Nov. 8	Prices Nov. 1
PENNSYLVANIA			
52-54 Naphtha	11½-12	11¾-12	11¾-12
54-56 Naphtha	11¾-12	-12	-12
58-60 Gasoline	11¾-12	11¾-12	12 -12¼
60-62 Straight-run gasoline	12½-12¾	12½-13	12½-13
64-66 Straight-run gasoline	13½-13¾	13½-14	13½-14
68-70 Straighr-run gas.350-360 E.P.	14 -14½	14 -15	14½-15
68-70 Straight-run gs.305-320 E.P.	17 -18	18 -20	18 -19
OKLAHOMA			
48-50 450 E. P. naphtha	- 9	9 - 9¼	9¼- 9¾
50-52 450 E. P. naphtha	- 9	9 - 9¼	9¼- 9¾
56-58 450 E. P. gasoline	8¾- 8⅞	9 - 9⅜	- 9¾
56-58 U. S. Motor gasoline	8⅞- 9	9⅜- 9¼	- 9¾
58-60 450 E. P. gasoline	8¾- 8⅞	9 - 9⅜	9¾- 9¾
58-60 U. S. Motor 437 E. P.	9 - 9¼	9¾- 9½	9½- 9¾
60-62 400 E. P. gasoline	10 -10¼	-10¼	10¾-10½
64-66 390 E. P. gasoline	-10¼	-10¾	-10⅝
64-66 375 E. P. gasoline	10⅜-10½	10½-10¾	11 -11¼
68-70 350-360 E. P. gasoline	11⅛-11⅜	-11½	11½-11¾
64-66 437 E. P. blend	- 9	- 9¼	9¼- 9½
KANSAS*			
58-60 U. S. Motor gasoline	9¾- 9⅝	- 9¾	9¾-10
60-62, 400 E.P. gasoline	10¾-10½	-10½	.....
64-66, 375 E.P. gasoline	-10¾	11 -11¼	.....
*F. O. B. refinery Kansas destination.			
NORTH TEXAS			
48-50 450 E. P. naphtha	- 9	- 9	- 9½
56-58 450 E. P. gasoline	- 8¾	8⅞- 9	9⅛- 9¼
58-60 450 E. P. gasoline	- 8¾	8⅞- 9	- 9¼
56-58 U. S. Motor gasoline	8¾- 8⅞	- 9	9¼- 9⅜
58-60 U. S. Motor gasoline	- 9	9⅜- 9¼	9½- 9⅝
64-66 390 E. P. gasoline	10 -10⅛	-10¼	-10½
64-66 375 E. P. gasoline	10⅜-10½	10¼-10½	-10¾
68-70 350-360 E. P. gasoline	11 -11⅛	-11⅜	-11⅜
NORTH LOUISIANA			
58-60 U. S. Motor 437 E. P.	9⅛- 9⅜	9¼- 9½	9½- 9¾
ARKANSAS			
56-58 450 E. P. gasoline	- 9	- 9	- 9½
58-60 450 E. P. gasoline	- 9	- 9⅛	- 9⅝
58-60 U. S. Motor gasoline	9⅛- 9¼	- 9¼	9¾- 9⅞
CALIFORNIA			
*54-58 U. S. Motor 437 E. P.	9 - 9½	9 - 9½	9 - 9½
*58-61 U. S. Motor, 437 E. P.	10 -10½	10 -10½	10½-10¾
*42-45 Engine distillate,445-480E.P.	7 - 7½	7 - 7½	7 - 7½
*2c tax to be added if used in state.			
NEW ENGLAND (F. O. B. Boston and Fall River)			
58-60 U. S. Motor gasoline	-12¼	-12¼	-12½

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F.)

OKLAHOMA			
Grade AA, 80-87.9 375 E. P.	9¼- 9⅜	9¼- 9½	9¼- 9½
Grade A, 72-79.9 375 E. P.	9¼- 9⅜	9¼- 9½	9¼- 9½
Grade BB, 84-92, 375 E. P.	8¾- 8⅞	8¾- 9	- 8¾
Grade B, 76-83.9, 375 E. P.	8¾- 8⅞	8¾- 9	- 8¾
Grade C, 80-90, 375 E. P.	- 8¾	-†8¾	-*8¾
NORTH LOUISIANA			
*Grade Double A	- 9¼	- 9¾	9½- 9¾
*Grade Double B	- 9½	- 9½	- 9¼
*Grade C	- 9¼	- 9¼	- 9
*F. O. B. Monroe District.			
NORTH TEXAS			
*Grade Double A	9¼- 9⅜	9¼- 9½	9¼- 9½
*Grade A	9¼- 9⅜	9¼- 9½	9¼- 9½
*Grade Double B	-†	8¾- 9	8¾- 9
*Grade B	-†	8¾- 9	8¾- 9
*Grade C	8⅞- 9	8¾- 9	8¾- 9
*F. O. B. Breckenridge.			
CALIFORNIA			
75-85, 375-390 E. P. blend	11 -11½	-11½	11½-12
PENNSYLVANIA			
68-70 Grav. 437 E. P. blend	12¼-12½	12¾-13	12¾-13
64-66 Grav. 437 E. P. blend	12¼-12½	12¾-13	12¾-13
60-62 Grav. 437 E. P. blend	12½-12½	12¾-13	12¾-13
68-70 Grav. 420 E. P. blend	12½-12¾	13 -13¼	13 -13¼

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	8¼- 8½	- 8½	8½- 8¾
46 Water White Kerosene	8¾- 9	9 - 9¼	9 - 9¼
47 Water White Kerosene	9¼- 9½	9⅝- 9¾	9¾-10
OKLAHOMA			
41-43 Water White Kerosene	6⅜- 6⅝	6¾- 7	6¾- 7
42-44 Water White Kerosene	- 7	7¼- 7½	7¼- 7½
KANSAS			
41-43 w. w. kerosene	- 7	7 - 7¼	7¼- 7½
42-44 w. w. kerosene	- 7¾	7¾- 8	- 8
NORTH TEXAS			
40-42 Water White Kerosene	- 6⅜	6⅜- 6½	6½- 6¾
41-43 Water White Kerosene	- 6½	- 6¾	6¾- 7
NORTH LOUISIANA			
41-43 Water White Kerosene	7 - 7¼	7 - 7¼	7 - 7¼
ARKANSAS			
41-43 Water White Kerosene	- 7	- 7	7 - 7¼
*Quotations Only. †Nominal			

CALIFORNIA	Prices Nov. 15	Prices Nov. 8	Prices Nov. 1
38-40 Water White Kerosene	6 - 6½	6 - 6½	6 - 6½
NEW ENGLAND			
**40-45 Water White Kerosene	-10½	-10½	-10¾

NEUTRAL OIL

PENNSYLVANIA (Viscosity at 70° F.)			
200 Vis. No. 3 Assoc. Filt.	28½-29	28½-29	28½-29
180 Vis. No. 3 Assoc. Filt.	25½-26½	25½-26½	25½-26½
150 Vis. No. 3 Assoc. Filt.	22½-23½	22½-23½	23 -24
(Non-Viscous)			
34 Grav. 350-360 Flash	7¾- 8¼	7½- 8	7½- 8
36 Miners Neutrals 300-305 Flash	7¼- 7¾	7 - 7½	7 - 7½
OKLAHOMA (Viscosity at 100° F.)			
100 Vis. No. 2 color	7 - 7¾	7 - 7½	7 - 7½
150 Vis. No. 3 color	9 -10	9 -10	9 -10
150 Vis. No. 4 color	- 9¾	- 9¾	- 9¾
180 Vis. No. 3 color	10 -11	10 -11	10 -11
180 Vis. No. 4 color	10 -10½	10 -10½	10 -10½
180 Vis. No. 5 color	10 -10¾	10 -10¾	10 -10¾
200 Vis. No. 3 color	10¾-11¾	10¾-11¾	10¾-11¾
200 Vis. No. 4 color	-11½	-11½	-11½
200 Vis. No. 5 color	9¾-11¼	9¾-11¼	9¾-11¼
220 Vis. No. 3 color	12 -13½	12 -13½	12 -13½
220 Vis. No. 4 color	-13	-13	-13
220 Vis. No. 5 color	12 -12¾	12 -12¾	12 -12¾
240 Vis. No. 3 color	14 -15	14 -15	14 -15
240 Vis. No. 4 color	-14½	-14½	-14½
240 Vis. No. 5 color	13 -14	13 -14	13 -14
280 Vis. No. 3 color	16 -17	16 -17	16 -17
280 Vis. No. 4 color	-16½	-16½	-16½
280 Vis. No. 5 color	15 -16	15 -16	15 -16
300 Vis. No. 5-6 color	-17	-17	-17
GULF COASTAL (Viscosity at 100° F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	8½- 9	8½- 9	8½- 9
200 Vis. No. 3 Color Unfilt. Pale	11 -12	11 -12	11 -12
300 Vis. No. 3 Color Unfilt. Pale	12 -13	12 -13	12 -13
500 Vis. No. 3½ Color Unfilt. Pale	14 -15	14 -15	14 -15
750 Vis. No. 4 Color Unfilt. Pale	17 -18	17 -18	17 -18
200 Vis. No. 5½ Color Red Oil	10 -10½	10 -10½	10 -10½
300 Vis. No. 5½ Color Red Oil	11½-12	11½-12	11½-12
500 Vis. No. 6 Color Red Oil	12½-13½	12½-13½	12½-13½
750 Vis. No. 6 Color Red Oil	16 -17	16 -17	16 -17
CALIFORNIA (Viscosity at 100° F.)			
100 Vis. No. 2 color	9½-10	9½-10	9½-10
100 Vis. No. 3 color	8 - 8½	8 - 8½	8 - 8½
200 Vis. No. 3 color	10 -10½	10 -10½	10 -10½
300 Vis. No. 3 color	11 -11½	11 -11½	11 -11½
450 Vis. No. 3½ color	13 -13½	13 -13½	13 -13½
550 Vis. No. 3½ color	15 -15½	15 -15½	15 -15½
600 Vis. No. 3½ color	15½-16	15½-16	15½-16
100 Vis. No. 5 color	7 - 7½	7 - 7½	7 - 7½
200 Vis. No. 5 color	9 - 9½	9 - 9½	9 - 9½
300 Vis. No. 5 color	9½-10	9½-10	9½-10
400 Vis. No. 6 color	11½-12	11½-12	11½-12
500 Vis. No. 6 color	12 -12½	12 -12½	12 -12½
600 Vis. No. 6 color	12½-13	12½-13	12½-13
700 Vis. No. 7 color	14½-15	14½-15	14½-15

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -35	31 -35	31 -35
150-160 Vis. at 210° Bright Stock	27 -31	27 -31	27 -31
600 E Stock 140-150 Vis —210°	18 -20	18 -20	18 -20
600 Steam Refined Olive Green	8 -11	8 -11	8 -11
600 Steam Refined Dark Green	5½- 7½	5½- 7½	5½- 7½
Black Oil	5 - 6	5 - 6	5 - 6
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	10½-11	11 -12	11 -12
650 Steam Refined	15 -16	15 -16	15 -16
600 Flash	-21	-21	-21
625 Flash	-31	-31	-31
600 Warren E	20 -20½	20 -20½	20 -20½
600 Oil City E	18½-19½	18½-19½	18½-19½
600 D Filtered	25½-26½	25½-26½	25½-26½
Cold Test Stocks (bright filtered)	38¼-40	39¼-40	40 -41
Cold Test Stock (dark filtered)	36¼-38	37 -38	37 -39

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

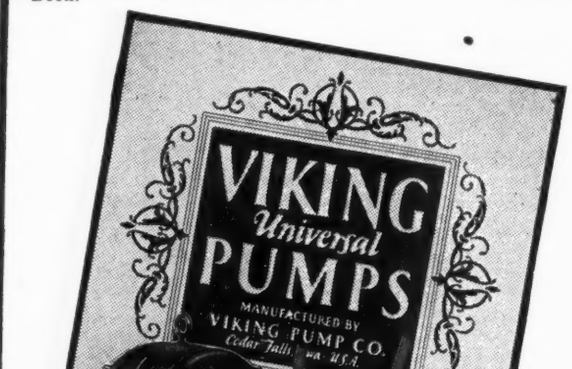
LONG RESIDUUM STOCKS

PENNSYLVANIA			
60-65 vis. @ 210, 440-450 flash No. 5½ color	-33	-33	-33
70-75 vis. @ 210, 450-455 flash No. 6 color	-34	-34	-34
80-85 vis. @ 210, 440-450 flash No. 7 color	-35	-35	-35
80-85 vis. @ 210, 450-460 flash No. 7-8 color	-36	-36	-36
80-85 vis. @ 210, 460-465 flash No. 7 color	36 -37	36 -37	36 -37
95-100 vis. @ 210, 490-495 flash No. 8 color	-38	-38	-38

**Only one refiner quoting.

VIKING PUMPS

The type illustrated here is the twin oil pump. Supplied also for engine or belt drive. Furnished on fire wall base if desired. SEND TODAY for the VIKING Pump Book.



80,000 Vikings of Proven Merit

You are not dealing with experiments when you install a Viking for your pump requirements.

Thousands of plants are exclusively Viking equipped. The service rendered by their first unit has lead them to buy unhesitatingly additional Vikings.

The improved rotary principle of the Viking offers you greater pumping capacity, a steady flow with positive suction. With only two moving parts Viking repairs are reduced to a negligible factor. It will be unusual if you ever spend a cent in this manner.

Any of the two-inch Viking Pumps will unload an 8,000 gallon car of oil in one hour and thirty minutes.

Write for the large Viking catalog today. It will give you descriptions of exactly the type of pump that is needed for your service.

Viking was given highest award at the Panama-Pacific Exposition.

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Cedar Falls, Iowa

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Viking Pump Co. of Canada, Ltd.	Walkerville, Ontario
Menge Pump & Mach. Co., Ltd.	862 Tchoupitoulas St., New Orleans, La.
De Laval Pacific Co.	61 Beale St., San Francisco, Cal.
Kerr Machinery Corp.	Kerr Building, Detroit, Mich.
Hayes Pump & Machinery Co.	94 Pearl St., Boston, Mass.
The Schirmer Co.	750 Prospect Avenue, Cleveland, Ohio
Southern Engine & Pump Co.	Houston, Texas
Power Equipment Co.	Oliver Building, Pittsburgh, Pa.
Walter H. Eagan & Co.	Stephen Girard Bldg., Philadelphia, Pa.
Walter O'Bannon Co.	519-21 E. First St., Tulsa, Okla.
Norton Paper Goods Co.	719 Delaware St., Kansas City, Mo.

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More Than A Truck Tank

It is Certified Oil Transportation and It Carries ALL the Oil

When you buy Good Trucks, equip them with Real Tanks. A Brown Certified Tank fills the bill. More Exact Fit, Long Life, No Repair Bill, Good Appearance

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**

Tear out this page and mail it today

We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks.

Other equipment on which you may send prices.....

Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California and New England

WAX

PENNSYLVANIA	Prices Nov. 15	Prices Nov. 8	Prices Nov. 1
	(Per Pound, New York)		
122-124 White Crude Scale	– 5	– 5	– 5
124-126 White Crude Scale.	– 5⅛	– 5⅛	– 5⅛
OKLAHOMA			
124-126 White Crude Scale.	4⅜ – 4½	4½– 4¾	4½– 4¾
CALIFORNIA			
White Crude Scale.....	6 – 7	6 – 7	6 – 7

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil.....	6⅝– 6¾	6⅝– 6¾	6⅝– 6¾
30-34 Fuel Oil.....	6¼– 6½	6¼– 6⅜	6¼– 6⅜
28-30 Fuel Oil.....	6¼– 6½	6¼– 6⅜	6¼– 6⅜
OKLAHOMA			
38-40 Straw distillate.....	5¼– 5½	5⅜– 5⅜	5⅜– 5⅜
36-38 Straw distillate.....	5 – 5¼	5 – 5⅛	5¼– 5⅜
32-36 Gas oil cracked (Gal.)	4⅛– 4¼	4⅛– 4¼	4⅛– 4¼
32-36 uncrackedGas oil,(Gal.)	4¼– 4⅜	4¼– 4⅜	4⅛– 4⅜
28-30 Fuel oil (Bbl.).....	1.52½–1.57½	1.50 –1.55	1.52½–1.57½
26-28 Fuel oil (Bbl.).....	1.40 –1.45	1.40 –1.45	1.40 –1.50
24-26 Fuel oil (Bbl.).....	1.30 –1.32½	1.30 –1.32½	1.35 –1.40
22-26 Fuel oil (Bbl.).....	1.25 –1.30	1.25 –1.30	1.30 –1.35
18-22 Fuel oil (Bbl.).....	1.20 –1.25	1.20 –1.25	1.25 –1.30
16-18 Fuel oil (Bbl.).....	–1.20	–1.20	1.25 –1.27½
14-16 Fuel oil (Bbl.).....	1.17½–1.20	1.17½–1.20	1.20 –1.25
KANSAS*			
38-40 straw distillate.....	5¾– 6	5¾– 6	– 6
36-38 straw distillate.....	5⅝– 5¾	5⅝– 5¾	5¾– 5⅞
32-36 Gas Oil.....	– 4½	– 4½	– 4½
18-22 Fuel Oil.....	1.25 –1.35	1.30 –1.35	1.35 –1.40
24-26 Fuel Oil.....	1.50 –1.60	1.50 –1.60	1.50 –1.60
*F. O. B. refinery, Kansas destination.			
NORTH TEXAS			
38-40 Straw Distillate.....	5⅝– 5¾	5 – 5¼	5¾– 5½
32-36 Gas Oil (Gal.) cracked	4 – 4⅛	4 – 4⅛	4 – 4⅛
32-36 uncracked gas oil....	– 4⅛	4⅛– 4¼	4⅜– 4¼
24-26 Fuel per (Bbl.).....	1.50–1.55	–1.55	1.55 –1.60
GULF COASTAL			
Fuel.....	1.55 –1.60	1.55 –1.60	1.55 –1.60
Gas Oil.....	5¼– 5½	5¼– 5½	5¼– 5½

NORTH LOUISIANA	Prices Nov. 15	Prices Nov. 8	Prices Nov. 1
32-36 Gas oil, cracked (Gal.)	4¼– 4⅜	4 – 4¼	4 – 4¼
32-36 Gas oil,uncracked(Gal.)	– 4½	4¼– 4½	4¼– 4½
16-20 Fuel Oil (Bbl.).....	1.15 –1.20	1.15 –1.20	1.20 –1.25
ARKANSAS			
30-34 Gas oil.....	4 – 4¼	4 – 4¼	4 – 4¼
32-36 Gas oil.....	4¼– 4½	4¼– 4½	4¼– 4½
Smackover Crude Fuel....	1.22½–1.27½	1.27½–1.30	1.27½–1.30
Road oil.....	.....	.....	1.26 –1.30
CALIFORNIA*			
14-18 Fuel Oil (Bbl.).....	85 –1.00	85 –1.00	85 –1.00
14-18 Bunker Oil (Bbl.)...	85 –1.00	85 –1.00	85 –1.00
30-34 Gas Oil (Bbl.).....	1.30–1.35	1.30 –1.35	1.30 –1.35
27 + Diesel Oil (Bbl.)....	–1.15	–1.15	–1.15
*(San Joaquin Valley, San Francisco 4c per bbl. more.)			
NEW ENGLAND			
	(F. O. B. Boston and Fall River)		
30-32 Gas Oil (Gal.).....	– 6	6 – 6⅛	– 6⅛
Fuel Oil (Bunker C) Bbl..	–1.87½	–1.82	–1.77

PETROLATUMS

PENNSYLVANIA			
Snow White.....	8½– 9	8½– 9	8½– 9
Lily White.....	7½– 8	7¾– 8	7¾– 8
Cream White.....	– 6½	– 6½	– 6½
Light Amber.....	– 3½	– 3½	– 3½
Amber.....	3¼– 3½	3¼– 3½	3¼– 3½
Red.....	– 3	– 3	– 3
Green —5.....	1¾– 2	1¾– 2	1¾– 2

PETROLEUM COKE

OKLAHOMA

(Per ton in car lots)

Lump.....	$5–$6	$5–$6	$5–$6
Breeze.....	2–2.25	2–2.25	2–2.25
Still Run.....	3.25–3.50	3.25–3.50	3.25–3.50

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from page 113

cents, but the bulk of material, excepting that of high cold test has been bringing 4⅛ cents and up.

Gas oil in the Louisiana territory has been strengthened as a result of the recent sale of approximately 2,000,000 gallons by one Shreveport refiner for shipment over a period of time.

Fuel oil orders have been just about on a balance with production, refiners report. The scarcity of cars suitable for fuel oil use still prevails. As winter approaches low cold test fuels are more in demand. The higher gravity fuels also are in better demand, with the result that prices have moved fractionally higher.

Neutral oils and cylinder stocks are unchanged in prices. Wax orders, however, have been scarce and the price has dropped to around 4⅜ to 4½ cents per pound for the 124-126 semi-refined material.

Gulf Lube Market Steady

HOUSTON, Nov. 15.—Gulf Coastal lubricant manufacturers report continued good movement of lubes from the Houston district at prices that have been steady for several weeks. Demand is best for the oils of lower viscosity. This expresses confidence that winter trade will be good. Plant stocks are in good condition.

Higher Ocean Rates Hold Gasoline Up

By Special Correspondent

NEW YORK, Nov. 15.—Advances in freight rates from California have tended to temporarily offset the decline in consumption of gasoline, and prices although easy did not show any further reductions. Stocks of gasoline all along the Atlantic seaboard are heavy while there has been a sharp drop in consumption which is attributed to the cold wave that has prevailed the past few days.

California U. S. Motor is now quoted at 11¼ cents a gallon in cargo lots f. o. b. Atlantic seaboard ports. Arrivals of California gasoline have been large and in tank cars at Atlantic seaboard terminals the price is quoted at 11½ cents a gallon while delivered in tank cars, to the trade the price is 12½ cents a gallon. Pennsylvania and upstate New York have been taking fairly large quantities up to the present but practically all of the big jobbers and marketers are now skeptical of taking on any more than is needed for actual requirements. Gasoline tank wagon prices are easy and there have been rumors of further cuts up state but no changes were recorded.

The advance in freight rates from California have been chiefly attributed to the British coal strike. There has been a heavy demand from the coal exporters for ships and this has left a scarcity of vessels for the California-New York trade.

California Petroleum Buys Tanker

LOS ANGELES, Nov. 13.—California Petroleum Corp. has bought the 15,050-ton tanker Agwismith from the Atlantic, Gulf & West Indies Steamship Co. for $1,200,000. The tanker has a cargo capacity for 122,000 barrels of oil. The corporation will have five ships with total deadweight tonnage of 50,000 when the Agwismith is delivered to it about Jan. 1.

Eastern Kentucky Market

ASHLAND, Nov. 15.—Demand for most products is fairly active. Fuel oil is strong. Kerosene is quiet. Today's quotations are:

58-60	Gasoline	12
60-62	Gasoline	12¼
64-66	Gasoline	12¾
68-70	Gasoline	13¼
41-43	Kerosene	8½
24-26	Fuel Oil	5⅛
34-36	Gas Oil	6¾

Market Section

Distillate and Gas Oil Buying Increases in Chicago Market

Staff Special.
CHICAGO, Nov. 13.

DISTILLATE and gas oil domestic demand increased this week in the Chicago resale market with the first cold snap this fall. Rain which turned to snow, set in Tuesday. From Tuesday the weather was cool but clear until today when it rained.

One refiner reported Wednesday that his distillate contract customers were inquiring for oil on the spot market. Another refiner said he had a good distillate business this week, but his gas oil sales exceeded those of distillate. A carload marketer, however, said the cool weather had not helped his burning oil business, and argued that jobbers had their tanks well filled. Majority of trade though reported an increased demand which began Wednesday.

Burning oil prices remained generally steady over the week. Gas oil was unchanged at 4¼ cents for 32-36 dark oil and 4½ cents for 32-36 straw color oil. The 38-40 straw distillate was unsettled Monday when prices ranged from 5⅜ to 5¾ cents but became steady at 5¼ to 5½ cents Wednesday and remained so through the rest of the week.

Light Gasolines More Active

ALTHOUGH high test gasoline demand was not materially aided by the cool weather, the trade reported more sales of light gasoline than of 58-60 U. S. Motor. There was no large buying, but demand was steady and especially from the northern states in the territory. Price of 64-66, 375 end point gasoline was 10½ to 10¾ cents over the week; and 60-62, 400 end point gasoline sold for 10¼ cents.

Demand for U. S. Motor gasoline was unchanged. Buying continued to be for current needs. One refiner reported that a customer's stock got so low that it was necessary for him to get gasoline from the refiner's filling station while buying 10 cars in the Chicago market. Prices of U. S. Motor gradually lowered during the week from 9⅜ to 9½ cents Monday, 9¼ to 9½ cents Tuesday, 9¼ to 9⅜ cents Wednesday, to a flat price of 9¼ cents for the balance of the week. A refiner today said he was selling at 9⅛ cents to meet competition.

Kerosene demand was slight, and prices eased off fractionally. The 41-43 w.w. grade began the week at 6¾ to 6⅞ cents and gradually fell to 6⅝ to 6¾ cents today. One refiner reported he was sold up and was quoting 7 cents. Another refiner said he was holding his price at 7 cents and getting it.

There was little demand also for fuel oils. The 18-22 grade sold for $1.22½ to $1.27½ Monday but stayed at the $1.25 level for the remainder of the week with only odd sales above or below that figure. The 24-26 fuel oil was unchanged at $1.30 to $1.35. Smackover was firm at $1.25 to $1.30, and several sellers reported a slight increased demand during the middle of the week from Chicago jobbers.

Inquiries for December fuel oil contracts were beginning to come into the market this week. Several marketers reported receiving a few inquiries, and one refiner reported a good volume of inquiries from his trade.

Weather forecast for next week is for unsettled conditions with occasional periods of precipitation. Temperatures will be mostly above normal.

Benzol Shade Easier

NEW YORK, Nov. 15.—Motor benzol is much easier. Consumption is falling and the big factors, although quoting 24 cents a gallon in tank cars at the ovens, are reported to be freely offering at 23 cents a gallon. The motor fuel mixture manufacturers are showing little interest and most of last week's activity was confined to filling standing contracts.

Export demand for motor benzol is more spirited and it is understood that several good-sized sales have been closed but details have been withheld. Pure and 90 per cent benzol are in steady demand but stocks are large and prices a shade easier.

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Week's Price Changes In Tank Wagon Markets

Gasoline Changes

Standard of New York—T.w. and s.s. prices gasoline reduced 1 cent, Burlington, Vt., to 22 cents and 24 cents respectively, including 2 cents tax, **Oct. 23.**

Standard of Indiana—The 4 cent reduction on gasoline in Minneapolis and St. Paul reported as effective Nov. 5 in the Nov. 10 issue of National Petroleum News, was not effective that date, but a 1 cent cut had been made on Nov. 2, and a 3 cent cut on Nov. 3, bringing prices to 17.2 cents tank wagon and 19.2 cents service station.

Standard of Kentucky—T.w. and s.s. prices gasoline reduced 1 cent, Mississippi and Alabama, **Nov. 10.** T.w. and s.s. prices gasoline reduced 2 cents, Georgia and Florida, **Nov. 9.** Two latter states were cut 2 cents on Oct. 30.

Gulfport, Miss., has been added to tank wagon table this week. Present prices are those shown in the accompanying table.

Magnolia Petroleum—T.w. and s.s. prices gasoline reduced 1 cent, Texarkana, to 23 cents, **Nov. 6.**

Continental Oil—T.w. prices only of gasoline reduced 3 cents, through New Mexico generally, **Nov. 10.** Albuquerque t.w. became 24 cents, establishing a 3 cent spread. T.w. and s.s. prices there have been the same since May 30, 1926.

Canada—In the general 2 cent decrease in gasoline prices through Canada on **Oct. 25,** Cochrane was unchanged, and t.w. price there has been 31.5 cents and s.s. price 40 cents since that date.

Fort William t.w. price was reduced 1 cent, to 27.5 cents, and s.s. price 2 cents, to 32 cents, **Nov. 4.**

Edmonton t.w. price gasoline, without tax has shown through typographical error as 27.5 cents. It should have been 29.5 cents since **Oct. 25.**

St. John, Moncton and Halifax service station prices gasoline have been 35 cents since **Oct. 25,** instead of 34 cents as shown in the tank wagon table.

Sydney s.s. gasoline price has been 37 cents since **Oct. 25.**

* * *

Kerosene Changes

Atlantic Refining—Kerosene reduced 1 cent, Pennsylvania and Delaware, to 16 cents generally at tank wagon, **Nov. 9.**

Magnolia Petroleum—T.w. price of kerosene at El Paso has been 16 cents since **Sept. 15.** It was advanced 1 cent on that date, having been 15 cents since July 3.

Canada—T.w. price of kerosene at Sydney, N. S., should have been 29 cents, instead of 27.5 cents, since **Oct. 25.**

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

These Prices in Effect Nov. 15, 1926

S. O. NEW JERSEY TERRITORY

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Atlantic City, N. J.	18	0	18	*	16
Newark, N. J.	18	0	18	20	16
Annapolis, Md.	18	2	20	*	16
Baltimore, Md.	18	2	20	23	16
Cumberland, Md.	18	2	20	23	16
Washington, D. C.	18	2	20	23	16
Danville, Va.	18	4½	22.5	*	16
Norfolk, Va.	18	4½	22.5	25.5	16
Richmond, Va.	18	4½	22.5	25.5	16
Roanoke, Va.	18	4½	22.5	25.5	16
Petersburg, Va.	18	4½	22.5	*	16
Williamsburg, Va.	18	4½	22.5	*	16
Charleston, W. Va.	18	3½	21.5	24.5	16
Clarksburg, W. Va.	18	3½	21.5	24.5	16
Keyser, W. Va.	18	3½	21.5	*	16
Parkersburg, W. Va.	18	3½	21.5	24.5	16
Wheeling, W. Va.	18	3½	21.5	24.5	16
Charlotte, N. C.	19	4	23	26	16
Hickory, N. C.	19	4	23	*	16
High Point, N. C.	19	4	23	*	16
Mt. Airy, N. C.	19	4	23	*	16
Salisbury, N. C.	19	4	23	*	16
Charleston, S. C.	19	5	24	27	16
Columbia, S. C.	19	5	24	27	16

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

*New York City	21	0	21	25	18
Albany, N. Y.	17	0	17	19	18
Buffalo, N. Y.	18	0	18	21	18
Rochester, N. Y.	18	0	18	22	16
Syracuse, N. Y.	17	0	17	19	18
Boston, Mass.	19	0	19	21	18
Augusta, Me.	21	3	24	26	18
Manchester, N. H.	21	2	23	25	18
Burlington, Vt.	20	2	22	24	18

*In steel barrels.

ATLANTIC REFINING

Pittsburgh, Pa.	19	*	19	*24	16
Philadelphia, Pa.	19	*	19	*24	16
Allentown, Pa.	19	*	19	*24	16
Erie, Pa.	†17	*	17	*22	14
Scranton, Pa.	19	*	19	*24	16
Altoona, Pa.	19	*	19	*24	16
Dover, Del.	19	2	21	24	16
Wilmington, Del.	19	2	21	24	16
Providence, R. I.	19	1	20	22	18
Boston, Mass.	19	0	19	21	18
Springfield, Mass.	19	0	19	21	18
Worcester, Mass.	19	0	19	21	18
Hartford, Conn.	19	2	21	24	17
New Haven, Conn.	19	2	21	24	18

*2-cent state tax is collected by retail dealer and paid by him directly to state.

†Most sales are being made at 17c at tank wagon but 18c is nominal price.

S. O. KENTUCKY

Lexington, Ky.	18	5	23	26	17
Louisville, Ky.	17	5	22	25	17
Covington, Ky.	18	5	23	26	17
Clarksdale, Miss.	17	4	21	24	14.5
Gulport, Miss.	18.5	4	22.5	25.5	15
Jackson, Miss.	17	4	21	24	15.5
Natchez, Miss.	16.5	4	20.5	23.5	15
Vicksburg, Miss.	16.5	4	20.5	23.5	15
Birmingham, Ala.	18	2	20	23	17.5
Mobile, Ala.	17	2	19	22	16
Montgomery, Ala*	19	2	21	24	18.5
Atlanta, Ga.	†16	3½	20	23	18
Augusta, Ga.	†16	3½	20	23	17
Macon, Ga.	†16	3½	20	23	18
Savannah, Ga.	†14	3½	18	20	16
Jacksonville, Fla.	14	4	18	21	16
Miami, Fla.	16	4	20	23	17.5
Tampa, Fla.	14	4	18	21	16
Pensacola, Fla.	**15	4	**19	22	16.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia has ½ cent per gal. inspection fee on gasoline which is deducted as well as the state gasoline road tax of 3½ cents, to get the actual net tank wagon market to dealer.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

S. O. INDIANA

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Chicago, Ill.	†18	0	†18	20	13.5
Decatur, Ill.	18.2	0	18.2	20.2	14
E. St. Louis, Ill.	17.1	0	17.1	19.35	13.1
Joliet, Ill.	18.4	0	18.4	20.4	14.2
Peoria, Ill.	18.2	0	18.2	20.2	14
Quincy, Ill.	18.2	0	18.2	20.2	13.8
Indianapolis, Ind.	18.2	3	21.2	23.2	14.2
Evansville, Ind.	18	3	21	23	14
South Bend, Ind.	18.4	3	21.4	23.4	14.4
Detroit, Mich.	18.8	2	20.8	22.8	14.7
Grand Rapids, Mich.	18.7	2	20.7	22.7	14.6
Saginaw, Mich.	18.9	2	20.9	22.9	14.8
Green Bay, Wis.	18.6	2	20.6	22.6	14.3
Madison, Wis.	18.3	2	20.3	22.3	14
Milwaukee, Wis.	18.1	2	20.1	22.1	13.8
La Crosse, Wis.	19.2	2	21.2	23.2	14.9
Minneapolis, Minn.	15.2	2	17.2	19.2	15.1
Duluth, Minn.	19.5	2	21.5	23.5	15.1
Mankato, Minn.	19.1	2	21.1	23.1	14.9
Des Moines, Iowa	16	2	18	20	14 4
Davenport, Iowa	18.5	2	20.5	22.5	14.4
Sioux City, Iowa	16.9	2	18.9	20.9	14
Mason City, Ia.	18.5	2	20.5	22.5	14 4
St. Louis, Mo.	*17.6	2	19 6	21.9	13.5
Kansas City, Mo.	††18.9	2	20.9	22.9	12.8
St. Joseph, Mo.	††18.5	2	20.5	22.5	13.4
Fargo, N. D.	20.9	2	22.9	24.9	17.1
Grand Forks, N. D.	20	2	22	24	17.4
Minot, N. D.	20.9	2	22.9	24.9	17 1
Pierre, S. D.	19.5	3	22.5	24.5	15 6
Huron, S. D.	19.5	3	22.5	24.5	15.6
Wichita, Kans.	**16.8	2	18.8	20.8	13.3
Bartlesville, Okla.	16.8	3	19.8	21.8	13.5

†Dumps of 100 or more gallons at 17c per gallon.
*Includes city tax of ½c.
††Includes city tax of 1c.
**Dumps of 50 gallons or more in Kansas, 1c discount per gallon.

S. O. NEBRASKA

Crawford, Neb.	19	2	21	*	14.75
Omaha, Neb.	18.25	2	20.25	22.25	14
McCook	19.75	2	21.75	23.75	15.5
Norfolk	17	2	19	21	14.5
North Platte	19.75	2	21.75	23.75	15.25
Scottsbluff	19.25	2	21.25	23.25	14.75

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	19	2	21	21	16
Pueblo, Colo.	19	2	21	23	16
Grand Junction, Colo.	23	2	25	27	20
Casper, Wyo.	19	2½	21.5	23.5	14.5
Cheyenne, Wyo.	20	2½	22.5	24.5	16
Butte, Mont.	19	2	21	21	19.5
Helena, Mont.	23	2	25	27	19.5
Salt Lake City, Utah.	20.5	3½	24	26	18
Boise, Ida.	22	3	25	27	20
Twin Falls, Ida.	22	3	25	27	20
Albuquerque, N. M.	21	3	24	27	18.5

S. O. CALIFORNIA

Phoenix, Ariz.	19	3	22	25	21.5
Los Angeles, Cal.	11.5	2	13.5	16.5	15.5
Fresno, Cal.	13.5	2	15.5	18.5	17.5
San Francisco, Cal.	13	2	15	18	15.5
Reno, Nev.	16.5	4	20.5	23.5	19
Portland, Ore.	13	3	16	19	16.5
Seattle, Wash.	13	2	15	18	16.5
Spokane, Wash.	17	2	19	22	20.5
Tacoma, Wash.	13	2	15	18	16.5

S. O. LOUISIANA

Little Rock, Ark.	17	4	21	24	16
Alexandria, La.	17	2	19	22	17
Baton Rouge, La.	16	2	18	21	15.5
Lake Charles, La.	17.5	2	19.5	22.5	17
New Orleans, La.	*16.5	2	18.5	21.5	16
Shreveport, La.	16	2	18	21	16
Lafayette, La.	17	2	19	22	16.5
Bristol, Tenn.	20	3	23	26	17.5
Chattanooga, Tenn.	19.5	3	22.5	25.5	17.5
Knoxville, Tenn.	19.5	3	22.5	25.5	18
Nashville, Tenn.	18	3	21	24	18
Memphis, Tenn.	17	3	20	23	17

*Includes 1c city tax on gasoline and kerosene.

S. O. OHIO

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
All Ohio points	20	2	22	24	17

MAGNOLIA PETROLEUM

Muskogee, Okla.	16	3	19	22	13
Oklahoma City	15	3	18	21	13
Tulsa, Okla.	16	3	19	22	13
Fort Smith, Ark.	17	4	21	24	14.5
Little Rock, Ark.	17	4	21	24	14.5
Texarkana, Ark.	19	4	*23	*23	15
Dallas, Tex.	16	1	**17	17	15
El Paso, Tex.	20	1	**21	21	16
Fort Worth, Tex.	16	1	**17	17	15
Houston, Tex.	18	1	**19	19	15
San Antonio, Tex.	18	1	**19	19	15

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

**Magnolia is maintaining only one price schedule in Texas—its retail schedule. This is in keeping with its contract, effective May 5, which allows the dealer 3c off the retail price.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.& P Naphtha	Cleaner Naphtha
Chicago	21	23	21
Detroit	22.2	24.7	22.7
Kansas City	21.2	23.2	21.2
Milwaukee	21.2	*25.7	*23.7
Minneapolis	*24.5	*27	*25
St. Louis	20.4	22.9	22.2
New York	...	22	....

*Includes 2c state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Toronto	24.5	3	27.5	31	24
Ottawa	24.5	3	27.5	31	24
Cochrane	28.5	3	31.5	40	29
Ft. William	24.5	3	27.5	32	26.5

MANITOBA

Winnipeg	27.5	3	30.5	34	26.5

SASKATCHEWAN

Regina	30.5	0	30.5	35	29.5

ALBERTA

Edmonton	29.5	2	31.5	35	28.5
Calgary	27.5	2	29.5	33	26.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	23

QUEBEC

Montreal	24.5	3	27.5	31	24
Quebec City	26.5	3	29.5	33	26
Three Rivers	26.5	3	29.5	35	26

NEW BRUNSWICK

St. John	27.5	3	30.5	35	27
Moncton	27.5	3	30.5	35	27

NOVA SCOTIA

Halifax	27.5	3	30.5	35	27
Sydney	29.5	3	32.5	37	29

PRINCE EDWARD ISLAND

Charlottetown	27.5	3	30.5	34	27

Note: In districts surrounding these points 1c additional is added to city price.

Gasoline Lags In Export Market; Fuel Oil And Kerosene Stronger

By Special Correspondent
NEW YORK, Nov. 15

WHILE export gasoline demand lagged last week, prices were well held. There is still a keen competitive spirit among the big refiners. No bulk sales were reported. Early in the week it developed that a leading refiner had consummated two mixed cargoes for November-December shipment to France but these were closed late the preceding week.

Bunker oil was advanced 10 cents a barrel on Monday by the Standard Oil Co. of New Jersey. All of the big New York refiners are now quoting $1.75 a barrel, refinery. Gas oil is weakening. Kerosene is steadier. High freight rates from California have tended to offset any further shading in gasoline at New York. Waxes are marking time. The lubricants were quiet.

Export Gasoline—New York

No change in export prices was reported last week. Foreign demand lagged. There was an inquiry from France for 45,000 barrels of U. S. Motor and prime and water white kerosene but this did not develop. Local refiners are asking 11½ cents a gallon for U. S. Motor gasoline in bulk at the refineries. There have been some fairly large clearances against standing contracts reported but local stocks are heavy due to the large arrivals from California.

Cased gasoline was in better demand. A South American buyer is reported to have purchased 25,000 cases for prompt shipment while a Japanese buyer was negotiating for the purchase of 30,000 cases for November-December shipment.

Export Gasoline—Gulf Ports

No bulk sales were reported at the close of the week. However, on Monday it was learned that one of the leading refiners had booked two cargoes the preceding week, calling for 55,000 barrels of prime white kerosene at 7⅞ cents and 61-63 gravity 390 end point gasoline at 11 cents for November-December shipment to France.

Regardless of the scarcity of export orders last week, prices were steady and in some instances a trifle firmer. On Saturday U. S. Motor ranged from 10⅛ to 10½ cents while 60-62 gravity 400 end point was quoted at 11 cents and 61-63 gravity 390 end point at 11¼ cents. The asking price for 64-66 gravity 375 end point ranged from 11½ to 11⅝ cents a gallon, in cargo lots. Cased gasoline is moving in a larger way but mainly against contracts. U. S. Motor was steady at $2.05 a case and 64-66 gravity 375 end point at $2.25 a case in cargo lots.

Domestic Gasoline—New York

Domestic demand for gasoline has been lagging the past few days. The cold wave has brought about a slump in the jobbing demand and many automobile owners are now laying their cars up for the winter. Stocks all along the Atlantic seaboard are heavy and U. S. Motor is freely offered at 11½ cents a gallon at the terminals and 12½ cents a gallon in tank cars delivered to the trade. Gasoline tank wagon prices are easy but no further reductions were announced.

Domestic Gasoline—Gulf Ports

Refiners report a marked decrease in the demand from jobbers and most of the buyers are operating on a hand-to-mouth basis. Gulf refiners were generally quoting U. S. Motor at 10¼ cents a gallon. Stocks of gasoline are heavy but no price shading was reported. There were rumors of impending tank wagon price reductions but no changes were recorded. The weakness in the Mid-Continent markets is held largely responsible for the depression in this market.

Export Kerosene—New York

Export demand for kerosene is more active and it was reported that one of the large Independent refiners had sold a cargo of 40,000 barrels of prime and water white kerosene for December shipment to the Continent. Prices were not disclosed. At New York harbor refineries, prime white was quoted at 10¼ cents a gallon and water white at 10½ cents a gallon.

Cased kerosene was in slightly better demand. One of the smaller refiners reported the sale of 20,000 cases of prime and water white kerosene for December shipment to the Near East while one of the leading refiners is working on an inquiry from China for 35,000 cases of prime and water white. Prices remained unchanged.

Export Kerosene—Gulf Ports

While there were two inquiries for cargoes of kerosene, no confirmed sales were reported. French and British buyers are following the market more closely. The cold weather has brought about a marked increase in domestic consumption and refiners are looking for stronger markets. The belief prevails that there will be a much improved export demand as soon as prices show a firmer tendency.

On Saturday prime white was quoted at 7⅞ to 8 cents a gallon and water white at 9¼ to 9½ cents a gallon. The latter grade is rather scarce, and more sparingly offered than a week ago. Cased kerosene was steady at $1.70 a case for prime white and $1.85 a case for water white in cargo lots. Business in cased kerosene was confined to small lots.

Domestic Kerosene

The domestic demand for kerosene has shown a marked improvement the past week which is attributed to the colder weather prevailing over the northern and eastern parts of the country. Consumption is steadily gaining and while prices are still easy along the Atlantic seabord refiners look for a general strengthening shortly.

At Atlantic seaboard terminals, water white was quoted at 10½ cents a gallon and in tank cars delivered to the trade at 10¾ cents a gallon while prime white was offered at ¼ cent below these prices. In the Gulf section, water white, 41-43 gravity was quoted at 10¼ cents a gallon, bulk, refinery.

Lubricants—New York

Pennsylvania cylinder stocks were dull and easy the greater part of the week. Export buyers are still confining their purchases to very small quantities. No cargo sales have been reported in some time. The asking price for Pennsylvania 600 s. r. unfiltered cylinder oil was easy at 18 cents a gallon, in barrels, New York. Bright stocks were steady but quiet. Paraffin oils are in slightly better export demand

Lubricants—Gulf Ports

There has been a noticeable increase in the number of orders for zero cold test oils but these have been mainly from domestic consumers and no export sales to speak of developed. There have been rumors current of the sale of another cargo of assorted lubricants but these lacked confirmation. Refiners are more confident of the future and appear less inclined to shade prices.

Waxes—New York

Domestic demand for paraffin waxes was a little more active last week, but export buyers are purchasing more conservatively. Prices did not show much change. Stocks are large and foreign consumers are still buying fairly heavily of Galician waxes. However, local re-

finers are showing more confidence in the future and are not pressing their stocks for sale. A French buyer was inquiring for 125 tons of white crude scale wax but this failed to materialize.

Waxes—Gulf Ports

Refiners are not inclined to shade their quotations. Saturday prices were as follows: White crude scale 124-126 A.m.p. 5.70 cents; 124-126 semi-refined 4.80 cents; 123-125 fully refined 5½ cents; 125-127 fully refined 5.60 cents; 128-130 fully refined 5¾ cents; 133-135 fully refined 6¼ cents and 135-137 fully refined 6½ cents a pound.

Bunker Oil—New York

Bunker oil was much firmer last week. Early in the week the Standard Oil Co. of New Jersey advanced the price of grade C 10 cents a barrel and all of the big local refiners are now asking $1.75 a barrel f.o.b. New York harbor refineries and $1.81½ a barrel f.a.s New York harbor. Heavy contract withdrawals have tended to reduce stocks and the reports of a stronger Gulf market have also had favorable influences locally. Fresh buying orders are more numerous, although mainly for bunkering purposes and no cargo sales were reported. Diesel oil was steady and unchanged at $2.50 a barrel at the refineries.

Bunker Oil—Gulf Ports

The Gulf bunker oil markets were decidedly firmer at the close of the week. Although grade C was still held at $1.60 a barrel for bunkering, f.o.b. New Orleans, there were no cargo offerings available below $1.45 a barrel, an advance of 5 cents a barrel over previous week's price. There was an inquiry from the Continent for 55,000 barrels of grade C bunker oil but whether this materialized or not was not made known. At Tampico grade C bunker oil was quoted at $1.55 for bunkering purposes, including taxes while there were no cargo offerings noted. Heavy Panuco crude oil was scarce and firm at $1.21 a barrel in cargo lots f.o.b. Tampico, taxes to be added.

Gas Oil—New York

The demand for gas oil was a shade better than a week ago, but export buying has been very disappointing and the bulk of the demand was from local consumers. Stocks of gas oil are large.

The asking price for 36-40 is steady at 6¼ cents a gallon while 28-34 is held at 5¾ cents a gallon, at the refineries.

Gas Oil—Gulf Ports

It was persistently reported that a leading Gulf refiner had sold a cargo of 35,000 barrels of 26-28 gas oil transparent through the neck of a four ounce bottle at 5⅛ cents a gallon, but confirmation was lacking. Europeans have been showing comparatively little interest in gas oil and the market has shown a sagging tendency the past few days. Stocks are large. The asking price for 32 plus dark gas oil is still 5 cents a gallon.

Complete Export Markets

New York Export Market

GASOLINE	Nov. 15	Nov. 8
U. S. Motor Tank cars Ref.	11½-11¾	11½-11¾
U. S. Motor cases	27.15	-27.15
California grade U. S. Motor F. O. B. N. Y. Cargoes	11¼	-11¼
KEROSENE		
43-45-150 W. W. Tank cars Ref.	10½	-10¾
43-45-150 W. W. Cases	19.65	-19.65
42-44-110 S. W. Cases	19.15	-19.15
GAS OIL		
36-40, Bulk Refinery	-06¼	-06¼
28-34, Bulk Refinery	-05¾	-05¾
MEXICAN BUNKER OIL		
Grade C, f. o. b. ref. Bulk	-1.75	1.65-1.75
Diesel Oil f. o. b. ref. Bulk	-2.50	-2.50

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS (Bbls.)

1 inch Immersion Test; All Penna. Products

Filtered D 600	27	-27
Filtered F 600	26	-26
Unfiltered 600 s. r.	18	-18
Unfiltered 650 s. r.	23½	-23½
600 flash s. r.	25	-25
630 Flash	34	-34

RED PARAFFIN (Bbls.)
(Viscosity at 70)

300 vis. No. 5 color	21	-21
250 vis. No. 5 color	20	-20
High Viscosity No. 5 color	25	-25

NEUTRAL OILS (Bbls.)
(Viscosity at 70)

200 vis. at F. Pale. No. 3 color	-31	-31
180 Pale. No. 3 color	-29	-29
150 Pale. No. 3 color	-24½	-24½

BLACK OIL (Bbls.)

25-30 cold test	13½	-13½
15 cold test	14½	-14½

MEDICINAL OILS
(Includes Price of Drums)
(Penna. Stocks)

	Nov. 15	Nov. 8
Domestic 875-885 s. g.	- .85	- .85
Domestic 865-.870 s. g.	.75- .80	.75- .80
Russian 885-.890 s. g. 325-330 vis.	1.00-1.10	1.00-1.10

WAXES
(Penna. Stocks)
(In Cents per Pound, F. A. S. Carload Lots)

WHITE CRUDE SCALE		
122-124 A. m. p.	-4.95	-4.95
124-126 A. m. p.	- .05	- .05
MATCH		
105-108 A. m. p.	-05¾	-05¾
FULLY REFINED		
120-122 A. m. p.	-05¾	-05¾
123-125 A. m. p. Philadelphia.	-05¾	-05¾
125-127 A. m. p.	-05¾	-05¾
128-130 A. m. p.	-06	-06
130-132 A. m. p.	-06¼	-06¼
133-135 A. m. p.	-06½	-06⅜
135-137 A. m. p.	-06¾	-06¾
YELLOW CRUDE SCALE		
124-126 A. m. p.	-4.90	-4.90

PETROLATUMS
(Penna. Stocks)
Per Pound

Dark Green	02½	02½
Veterinary	03	03
Light Amber	03¾	03¾
Dark Amber	03½	03½
Cream	06½	06½
Lily White	08¾	08¾
Snow White	09¾	09¾

Gulf Export Market

GASOLINE
F. O. B. Seaboard
(Shipments of 20,000 Bbls. and over)

	Nov. 15	Nov. 8
U. S. Motor, Bulk	10⅛-10¾	10⅛-.10¼
60-62 400 e. p. Bulk	-11	-.10¾
61-63-390 e. p. Bulk	-11¼	-.11
64-66-375 e. p. Bulk	-11¾	-.11½
U. S. Motor, Cases (cargo lots.	2.05	2.05
64-66 Cases (cargo lots)	2.25	2.25
KEROSENE		
Water White, 43-45 bulk	09¼-09½	09¼-09¾
Prime White, 41-43 Bulk	07⅞-08	07⅞-08
Water White, cases (cargo lots)	1.85	1.85
Prime White, cases (cargo lots)	1.70	1.75
DOMESTIC GAS AND BUNKER OIL		
26-28, gravity, bulk*	05⅛	-05⅛
32 plus, bulk, Dark	05	-05
Grade C, Bunker oil	1.60	-1.60
Cargoes	1.45	-1.40

*Transparent through neck of a 4 oz. bottle

MEXICAN CRUDE AND BUNKER OILS
F. O. B. Steamer Tampico

Heavy, Panuco crude Taxes to be added	1.21	-1.20
Grade C, Bunker oil Taxes paid cargoes	nominal	nominal
Grade C, Bunker oil, F. O. B. Tampico, For Bunkering Purposes, taxes paid	1.55	-1.55

SOUTH TEXAS
(Viscosity at 100° F; cold test 0)
(Tanker, F. O. B. Houston)

*LUBRICATING OILS	Nov. 15	Nov. 8
100 Vis. No. 2 Unfiltered Pale	08¼	08¼
150 Vis. No. 2½ Unfiltered Pale	10¼	10¼
200 Vis. No. 3 Unfiltered Pale	11	11
300 Vis. No. 3 Unfiltered Pale	12½	12½
500 Vis. No. 3½ Unfiltered Pale	14	14
200 Vis. No. 5½ Red Oil	10¼	10¼
300 Vis. No. 5½ Red Oil	10¾	10¾
500 Vis. No. 6 Red Oil	11¾	11½
800 Vis. No. 6 Red Oil	16	16

*These prices are entirely nominal owing to wide fluctuations.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles Gravity test on A.P.I. scale

	Nov. 15	Nov. 8
Gasoline, U. S. Motor— 54°-56°	8¾- 9½	09 - 9½
Gasoline, U. S. Motor— blends and special cuts	9½-10	10 -10½
Gas Oil, 30°—34° per bbl.	$1.30-1.35	1.35-1.40
Diesel Oil, 27°—plus per bbl.	$1.00-1.15	1.00-1.15
Fuel Oil, 14°—18° per bbl.	$ .80-1.00	.85-1.00
Kerosene, W. W. 38°—40° per gal., 125-150 flash test	.06-06½	.05½- .06
Cased Goods		
Gasoline, U. S. Motor	$2.25	-2.25
Kerosene, W. W. 38°—40° per case, 125-150 flash	$1.45-1.55	$1.45-1.55

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	Nov. 15	Nov. 8
U. S. Motor Gasoline, Tank Cars Delivered greater N.Y.	12½-12¾	12½-12¾
U. S. Motor Gasoline, Tank... Cars Bayonne	11½-11¾	11½-11¾
U. S. Motor Tank Cars, *Atlantic Seaboard Terminals.	-11½	-11½
Kerosene, 44 150 W. W. Tank Cars de'd greater N.Y.	11¾	-11¾
Grade C Bunker f.o.b. N.Y. Ref	-1.75	1.65-1.75
Diesel Oil f.o.b. Refinery	2.50	2.50
Gas Oil, 36-40, Bulk Refinery	-06¼	-06¼
Gas Oil, 28-34 Bulk, Refinery	-05¾	-05¾

*New York, Philadelphia, Portsmouth, Va. Charleston, S. C.

Crude Oil Prices, as Posted by Major

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.40
Bradford District Oil in National Transit Lines (Bradford District)	3.40
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.30
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.30
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.25
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.05
Keister Grade in National Transit Lines (Butler Co.)	2.05
Gaines Tioga Co. (Pa.)	2.85
Cabell Grade in Eureka Pipe Lines (West Virginia)	2.40
Corning Grade in Buckeye Pipe Lines (Ohio)	2.55
*Somerset Medium in Cumberland Pipe Lines (Kentucky)	2.50
*Somerset Light in Cumberland Pipe Lines (Kentucky)	2.65
Ragland Grade in Cumberland Pipe Lines (Kentucky)	1.25

*Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Tinsley Bottom, Tenn oil in Stoll lines	$2.46
Oil City Ky. oil in Stoll lines	2.65

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$2.55	Illinois	$2.37
Lima	2.48	Plymouth	1.99
Waterloo	1.35	*Canadian Petrolia	2.88
Indiana	2.25	*Posted by Imperial Oil Ltd.	
Princeton	2.37		

OKLAHOMA, KANSAS And NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective May 15, 1926.

28-28.9	$1.65	34-34.9	$2.13
29-29.9	1.73	35-35.9	2.21
30-30.9	1.81	36-36.9	2.29
31-31.9	1.89	37-37.9	2.37
32-32.9	1.97	38-38.9	2.45
33-33.9	2.05	39-39.9	2.53
40-40.9	$2.61	47-47.9	$3.17
41-41.9	2.69	48-48.9	3.25
42-42.9	2.77	49-49.9	3.33
43-43.9	2.85	50-50.9	3.41
44-44.9	2.93	51-51.9	3.49
45-45.9	3.01	52 and above	3.57
46-46.9	3.09		

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective Nov. 1

28-28.9	$1.50	41-41.9	$2.15
29-29.9	1.55	42-42.9	2.20
30-30.9	1.60	43-43.9	2.25
31-31.9	1.65	44-44.9	2.30
32-32.9	1.70	45-45.9	2.35
33-33.9	1.75	46-46.9	2.40
34-34.9	1.80	47-47.9	2.45
35-35.9	1.85	48-48.9	2.50
36-36.9	1.90	49-49.9	2.55
37-37.9	1.95	50-50.9	2 60
38-38.9	2 00	51-51.9	2.65
39-39 9	2.05	52 and above	2.70
40-40.9	2.10		

Oil below 28° gravity is 5c less for each degree. The Texas Co. posted same gravity and price schedule in Oklahoma, North, North Central and Central Texas on Nov. 5 as Humble, excepting it is paying $1.40 for all oil below 28° gravity in Texas fields.

Mirando, Tex. $1.25

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Same grades and prices as posted by Humble excepting that Magnolia is paying $1.30 for all oil below 28° gravity, effective Nov. 2.

Corsicana heavy $1.25

Carter Oil Co.
(Oklahoma and Kansas)

On Nov. 2, Carter posted same gravity and price schedule as Humble posted on Nov. 1 in North Texas.

PANHANDLE, TEXAS
Humble Oil & Refining Co.

Hutchinson, Carson and Wheeler Counties $1.25

Gray County:

28-28.9	$1.00	37-37.9	$1.45
29-29.9	1.05	38-38.9	1.50
30-30.9	1.10	39-39.9	1.55
31-31.9	1.15	40-40.9	1.60
32-32.9	1.20	41-41.9	1.65
33-33.9	1.25	42-42.9	1.70
34-34.9	1.30	43-43.9	1.75
35-35.9	1.35	44 and above	1.80
36-36.9	1.40		

Magnolia Petroleum Co. posted flat price of $1.25 for all Panhandle Crude on Sept. 22, and Kay County Gas Co. on Oct. 4.

WEST TEXAS
(Crane, Upton and Crockett Counties)
Humble Oil & Refg. and Kay County Gas Co.

Below 26	$ .80	31-31.9	$1.10
26-26.9	.85	32-32.9	1.15
27-27.9	.90	33-33.9	1.20
28-28.9	.95	34-34.9	1.25
29-29.9	1.00	35-35.9	1.30
30-30.9	1.05	36 and above	1.35

NORTH LOUISIANA—ARKANSAS FIELDS
***Prices of Standard Oil Co. of Louisiana**

Caddo, Homer, Hayneaville, Bull Bayou, El Dorado, Crichton and De Soto
Effective Nov. 4

Below 28	$1.40	40-40.9	$2.10
28-28.9	1.50	41-41.9	2.15
29-29.9	1.55	42-42.9	2.20
30-30.9	1 60	43-43.9	2.25
31-31.9	1.65	44-44.9	2.30
32-32.9	1.70	45-45.9	2.35
33-33.9	1.75	46-46.9	2.40
34-34.9	1.80	47-47.9	2.45
35-35.9	1.85	48-48.9	2.50
36-36.9	1.90	49-49.9	2.55
37-37.9	1.95	50-50.9	2.60
38-38.9	2.00	51 51.9	2.65
39-39.9	2.05	52 and above	2.70
Smackover, below 24			$1.10
" 24-24.9			1.35
" 25-25.9			1.40
" 26-26.9			1.45
" 27 and above			1.50
Bellevue			1.40
Cotton Valley			1.20
**Urania, La.			1.10
†Calion (East El Dorado)			.95

*Gulf and La. Oil Refg. Corp. met S. O. La. prices on Nov. 4 and The Texas Co. and Magnolia Pet. met on Nov. 5.

**Posted by Louisiana Oil Refining Corp.

†Posted by Gulf.

STEPHENS, ARKANSAS

Posted by Atlantic Oil Producing Co.

Below 28	$1.30	29-29.9	$1.45
28-28.9	1.40	30 and above	1.50

GULF COASTAL and SPINDLETOP
Posted by Humble Oil & Refining Co.

Grades A	$1.40	28-29.9	$1.65
Grades B:		30-30.9	1.70
Below 25	1.40	31-31.9	1.75
25-25.9	1.45	32-32.9	1.80
26-26.9	1.50	33-33.9	1.85
27-27.9	1.55	34-34.9	1.90
28-28.9	1.60	35 and above	1.95

Fields classified as A and B are Goose Creek, Hull, Liberty, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

Crude Price Changes

HOUSTON, Nov. 15.—On Nov. 10 Humble Oil & Refining Co. re-classified Spindletop crude to conform with prices it pays for Gulf Coastal A and B grades. This revision on Spindletop amounts to an advance of 15 cents on each grade.

On the same date The Texas Co. met the Humble prices. Gravity and price schedule of these two companies on Spindletop, effective Nov. 10, is:

	The Texas Co.		Humble
Below 25	$1.40		$1.40
25-25.9	1.45		1.45
26-26.9	1.50		1.50
27-27.9	1.55		1.55
28-28.9	1.60		1.60
29-29.9	1.65		1.65
30-30.9	1.70		1.70
31-31.9	1.75		1.75
32-32.9	1.80		1.80
33-33.9	1.85		1.85
34-34.9	1.90		1.90
35-35.9	1.95	35 and above	1.95
36-36.9	2.00		
37-37.9	2.05		
38-38.9	2.10		
39-39.9	2.15		
40 and above	2.20		

Prices for Gulf Coastal crude as posted by The Texas Co. have been in error in the crude price table since Aug. 30. On that date The Texas Co. had reduced all grades 10 cents, with 35 to 35.9 at $1.95 and 40 and above at $2.20, with same prices as Humble on oil below 35 gravity.

Kendall Refining Offers Anti-Knock Fuel

Staff Special

BUFFALO, N. Y., Nov. 13.—Kendall Refining Co., Bradford, Pa., is advertising in the western New York territory where it has distribution an anti-knock gasoline which has been named "Kendall Balanced Gasoline."

These claims are made for it in the advertising:

"Starts quicker in cold weather.
"Has a snappy pick-up.
"Minimizes knocking.
"Produces more power.
"Gives more mileage.
"Provides better lubrication.
"Leaves less carbon."

The price is the same as competitive gasolines.

It is said in the advertising that the gasoline is produced by a new process which increases the percentage of olefine, naphthene and aromatic hydrocarbons and that no chemicals or dopes are used. The Kendall company has Dubbs and Bruin process stills at Bradford.

The initial advertisement in Buffalo papers announcing the new gasoline was five columns by 18 inches.

BELLE PLAINE, MINN.—That paved roads act as a "magnet" for motorists is attested to by J. A. Schoell, secretary of the Moba Oil Co., Inc., here, who says trunk highway 5 is now paved for 20 miles south and 10 miles north of Belle Plaine. Traffic is becoming heavier on this main road between St. Paul and Minneapolis, and Mankato and places beyond.

Purchasers, in All Fields (in Effect, Nov. 15, 1926)

GULF COASTAL and SPINDLETOP
Prices of The Texas Co.

Grades A	$1.60	*Grades B	$1.60
‡Grades B (light crude):			
35-35.9	$1.95	38-38.9	$2.10
36-36.9	2.00	39-39.9	2.15
37-37.9	2.05	40 and above	2.20

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS
Prices of Ohio Oil Co. and Midwest Refining Co

‡Salt Creek	29-29.9	$1.73
" "	30-30.9	1.81
" "	31-31.9	1.89
" "	32-32.9	1.97
" "	33-33.9	2.05
" "	34-34.9	2.13
" "	35-35.9	2.21
" "	36-36.9	2.29
" "	37 and above	2.37
Elk Basin		2.40
Grass Creek light		2.40
Big Muddy		$2.35
Lance Creek		2.40
Rock Creek		2.25
‡Osage		2.40
‡Cat Creek, Mont.		2.40
Sunburst, Mont.		1.35
‡Hogback, N. Mex.		2.45
Artesia, N. Mex.		2.20

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light, and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA
Standard Oil Co. of California

Gravity	Signal Hill Huntington Beach	Ingle-wood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Monte-bello	Coyote Hills	Santa Fe Springs	Midway Sunset Elk Hills
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	.....	$ .85	$ .85	.....	$ .75
15-15.9	.87	.87	.85	.75	.87	.....	.85	.85	.....	.75
16-16.9	.90	.90	.85	.75	.90	.....	.85	.85	.....	.75
17-17.9	.94	.94	.85	.75	.94	.....	.85	.85	.....	.75
18-18.9	.98	.98	.86	.75	.98	.....	.86	.86	.....	.75
19-19.9	1.04	1.04	.87	.75	1.04	.....	.87	.87	.....	.75
20-20.9	1.10	1.10	.89	.....	1.10	.....	.89	.90	.....	.82
21-21.9	1.16	1.16	.91	.....	1.16	.....	.91	.98	.....	.90
22-22.9	1.22	1.22	.94	.....	1.22	.....	.94	1.06	.....	1.00
23-23.9	1.28	1.28	.....	.....	1.28	.....	.97	1.14	.....	1.11
24-24.9	1.34	1.34	.....	.....	1.34	$1.34	1.01	1.22	$1.02	1.22
25-25.9	1.40	1.40	.....	.....	1.40	1.40	1.05	1.30	1.08	1.33
26-26.9	1.46	1.46	.....	.....	1.46	1.46	1.38	1.16	1.44	1.44
27-27.9	1.52	1.52	.....	.....	1.52	1.52	1.13	1.46	1.24	1.55
28-28.9	1.58	1.58	.....	.....	1.58	1.58	1.17	1.54	1.32	1.66
29-29.9	1.64	.....	.....	1.64	1.64	1.64	1.21	1.62	1.40	1.77
30-30.9	1.70	.....	.....	.....	1.70	1.70	1.25	1.70	1.48	1.88
31-31.9	1.76	.....	.....	.....	.....	1.76	.....	.....	1.60	1.99
32-32.9	1.84	.....	.....	.....	.....	1.84	.....	.....	1.72	2.10
33-33.9	.....	.....	.....	.....	.....	1.92	.....	.....	1.84	2.21
34-34.9	.....	.....	.....	.....	.....	2.00	.....	.....	1.96	.....
35-35.9	.....	.....	.....	.....	.....	2.08	.....	.....	2.08	.....
36-36.9	.....	.....	.....	.....	.....	2.16	.....	.....	2.16	.....
37-37.9	.....	.....	.....	.....	.....	2.24	.....	.....	2.24	.....
38-38.9	.....	.....	.....	.....	.....	2.34	.....	.....	2.34	.....
39-39.9	.....	.....	.....	.....	.....	2.44	.....	.....	2.44	.....
40-40.9	.....	.....	.....	.....	.....	2.54	.....	.....	.....	.....
41-41.9	.....	.....	.....	.....	.....	2.64	.....	.....	.....	.....
42-42.9	.....	.....	.....	.....	.....	2.74	.....	.....	.....	.....

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.75	.75	.75	.85	.85
16-16.9	.75	.75	.75	.85	.85
17-17.9	.75	.75	.75	.85	.85
18-18.9	.75	.75	.75	.85	.85
19-19.9	.75	.75	.75	.85	.85
20-20.9	.82	.79	.78	.90	.90
21-21.9	.90	.86	.81	.97	.97
22-22.9	1.00	.93	.85	1.04	1.04
23-23.9	1.11	1.00	.89	1.11	1.11
24-24.9	1.22	1.07	.93	1.18	1.18
25-25.9	1.33	1.14	.97	1.25	1.25
26-26.9	1.21	1.01	1.32	1.32	1.32
27-27.9	1.55	1.28	1.05	1.39	1.39
28-28.9	1.66	1.36	.....	1.46	1.46
29-29.9	1.77	1.42	.....	1.53	1.53
30-30.9	1.88	1.49	.....	1.60	1.60
31-31.9	1.99	1.56	.....	.....	1.67
32-32.9	2.10	1.63	.....	.....	1.73
33-33.9	2.21	1.70	.....	.....	1.79
34-34.9	2.32	1.77	.....	.....	1.85
35-35.9	.....	1.84	.....	.....	1.92
36-36.9	.....	.....	.....	.....	.....
37-37.9	.....	.....	.....	.....	.....
38-38.9	.....	.....	.....	.....	.....
39-39.9	.....	.....	.....	.....	.....
40-40.9	.....	.....	.....	.....	.....
41-41.9	.....	.....	.....	.....	.....
42-42.9	.....	.....	.....	.....	.....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 28.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Nov. 15	Nov. 8
Soda Ash light 58⅓ bags.cwt.	$1.38	$1.38
Silicate of Soda 60 deg. drums.....cwt.	$1.65	$1.65
Sal Soda wks.....90- 1.10	.90- 1.10	
Caustic Soda 70⅓ solid..cwt.	- 3.10	- 3.10
Chloride of Lime.....cwt. works.....	- 2.00	- 2.00
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	10.50-11.00	10.50-11.00
Liquid Chlorine tank cars works.....lb.	- .04	- .04

Compounders' Supplies (Open Market)

Vegetable Oils—			
Linseed carloads spot.....lb.		11.1	10.9
Nov.-Dec.		11.1	10.9
Tanks, spot		10.3	10.1
Boiled carloads spot.....lb.		11.5	11.3
*Soya Bean spot, Bbls....lb.		13	13
Castor Oil—			
No. 1 Carlots, Bbls.....		-.12¼	-.12¼
No. 3 Carlots, Bbls.....		-.11¾	-.11¾
Animal Oils—			
English Degras.....		.05½	-.05½
Domestic Degras, bbls., carloads.....lb.		-.04¾	-.04¾
*Horse.....lb.		-.08¼	-.08¼
Oleic Acid—			
Dist. Bbls.....lb.	.09¾	-.10¼	.09¾-.10¼
Saponified Bbls.....lb.	.10	-.10½	.10 -.10½
Lard Oils—			
Prime Winter Strained. to 1¼ ffa.	40/45c.t.lb.	.15⅞	.16⅞
Extra Winter Strained. 2 to 4½ ffa.	40-45c.t.lb.	.13¼	.13¼
Extra..... 4 to 5 ffa.	40-45c.t.lb.	.12¼	.12½
Extra No.1. 7 to 10 ffa.	40-50c.t.lb.	.10¾	.11¼
No. 1.....15 to 18 ffa.	40-45c.t.lb.	.10½	.11
No. 2.....22 to 23 ffa.	40-45c.t.lb.	.10¼	.10¾
Prime Edible Tallow under 1¼ ffa.	40-45c.t.N.Y.....lb.	-.08¾	-.09¾
Tallow acidless.....lb.		-.10¼	-.10¾
Lard Stearine.....lb.		-.17	-.17
Oleo Stearine.....lb.		-.10	-.10¼
Neatsfoot Oil—			
Pure.....bbls.-lb.		.13¾	.15¼
Extra.....do lb.		.10¾	.11¼
No. 1.....bbls.-lb.		.10½	.11
Cold pressed.....lb.		.17¼	.18¾
Fish Oils—			
Menhaden Oil			
Light pressed.....gal.		-.58	-.62
White.....gal.		-.67	-.69
Yellow bleached.....gal.		-.65	-.67
*Herring tank cars coast.....gal.		-.47	-.47
Whale, extra winter bleached.....gal.		-.82	-.84
Seal.....gal.			nominal
Naval Stores—			
Turpentine, N. Y.....gal.		-.89½	-.86½
Turpentine†.....gal.		-.84½	.82½
Rosin, B. N. Y.....bbl.		13.05	13.30
Rosin, F. N. Y.....bbl.		13.10	13.35
Rosin, B†.....bbl.		nominal	nominal
Rosin, F†.....bbl.		nominal	nominal
Rosin Oil 1st run.....gal.		.85	.85
Rosin Oil 2nd run.....gal.		.90	.90
Pine Tar—			
Kiln Burnt.....bbl.		16.00	16.00
Retrt.....bbl.		18.50	18.50

†Savannah, Ga. market.
*Nominal.

Alcohol—Denatured— Formula 5		
Bbls.....gal.	-.40	-.40
Drums.....gal.	-.33	-.33

OIL STOCKS AND FINANCES

National Petroleum News

Larger Profits Earned by Few Companies

CLEVELAND, Nov. 13

LARGER earnings in the third quarter of 1926 than in the third quarter of 1925 are reported by several more oil companies. Reports of a few companies show recessions from the 1925 income.

Improvement in the third quarter has been shown by Skelly Oil Co., Texas Pacific Coal & Oil Co., Pierce Petroleum Co., and Independent Oil & Gas Co.

Although its gross earnings were less in the third quarter of this year than in the corresponding three months of last year, Mexican Seaboard Oil Corp. reported a smaller loss, after deduction of depreciation and depletion reserves, than in the preceding year. Houston Oil Co. reports larger operating income.

For the first three quarters of this year there were both increased and decreased earnings. The most notable gain by the companies listed here was made by the Skelly Oil Co. Comparative income reports for 1925 and 1926 follow:

Condensed Comparative* Earnings Statements for First Three Quarters of 1925 and 1926

Company	Gross Operating Income	Expenses, Taxes, etc.	Net Operating Income	Total Income	Depreciation Depletion Drilling Res.	Interest U. S. Taxes	Net Profits	Net on Common a Share
American Republics Corp. 1926	$3,727,177	$1,501,447	$2,225,730	$2,374,330	.....	$ 265,847	$2,108,487	$7.91
do 1925	4,585,292	1,636,657	2,949,235	2,716,850	.....	338,045	2,378,805	9.26
Houston Oil Co. 1926	5,566,573	3,356,419	2,210,154	.....	.....	.....	.....	....
do 1925	2,920,478	1,184,417	1,736,061	.....	429,523	.....	*1,306,538	....
ndependent Oil & Gas Co. 1926	6,353,767	3,017,574	3,336,193	.....	1,328,425	247,370	1,760,397	3.52
do 1925	3,017,574	1,500,270	3,239,034	.....	908,278	166,843	2,163,913	4.33
Louisiana Oil Refg. Co. 1926	.....	.....	3,253,382	.....	1,171,314	362,799	1,719,269	1.33
do 1925	.....	.....	1,840,155	.....	671,198	338,167	*830,790	....
Mexican Seaboard Oil Corp. 1926	4,313,616	2,334,496	1,979,120	2,051,395	2,245,029	183,750	† 377,384	....
do 1925	6,727,225	2,998,677	3,728,548	3,862,678	4,218,197	183,750	† 539,269	....
Pennok Oil Corp. 1926	720,388	1,731,449	478,454	567,631	‡ 260,862	29,136	277,633	1.85
do 1925	241,934	411,003	1,320,446	1,479,418	‡ 523,419	101,250	854,749	5.69
Pierce Petroleum Corp. 1926	6,112,142	5,228,417	883,142	.....	678,114	167,457	† 15,844	....
do 1925	6,498,289	5,287,617	1,210,672	.....	554,166	140,231	455,166	.18
Skelly Oil Co. 1926	19,647,655	10,920,688	8,726,967	.....	3,265,551	440,276	*5,021,140	*5.02
do 1925	17,414,709	9,915,348	7,499,361	.....	3,662,311	740,637	*3,096,413	*3.70
Texas Pacific C. & O. Co. 1926	6,407,536	3,797,983	2,609,553	3,155,548	.....	.....	§2,973,739	....
do 1925	4,633,757	3,057,061	1,576,696	1,802,407	.....	.....	§1,666,270	....

*Subject to Federal Taxes. †Loss. ‡Includes federal taxes. §Subject to Reserves.

Condensed Comparative Earnings Statements for Third Quarters of 1925 and 1926

Company	Gross Operating Income	Expenses, Taxes, etc.	Net Operating Income	Total Income	Depreciation Depletion Drilling Res.	Interest, U. S. Taxes	Net Profits	Net on Common a Share
American Republics Corp. 1926	$1,265,320	$ 516,718	$ 748,602	$1,106,891	.....	$ 92,175	$1,014,716	$4.19
do 1925	1,403,131	509,524	893,607	.....	.....	223,499	670,108	3.76
Houston Oil Co. 1926	2,330,159	1,580,796	749,363	.....	.....	.....	.....	....
do 1925	997,977	410,432	587,545	.....	.....	.....	.....	....
Independent Oil & Gas Co. 1926	2,889,080	1,432,897	1,456,133	.....	502,331	122,833	830,968	1.66
do 1925	1,594,286	751,076	843,210	.....	333,152	3,711	*506,347	*1.01
Louisiana Oil Refg. Co. 1926	.....	.....	1,220,021	.....	428,074	176,317	615,630	.48
do 1925	.....	.....	1,294,032	.....	388,901	73,976	*841,154	* .68
Mexican Seaboard Oil Corp. 1926	1,394,579	722,118	672,461	697,034	780,688	61,250	†144,904	....
do 1925	2,019,590	1,005,830	1,013,760	1,058,167	1,491,043	61,250	†494,126	....
Pennok Oil Corp. 1926	204,235	81,230	123,005	149,609	†42,973	8,946	97,690	.65
do 1925	325,688	128,079	197,609	243,756	†75,666	33,750	134,340	.88
Pierce Petroleum Corp. 1926	2,285,308	1,868,459	416,849	.....	223,906	72,704	120,239	.05
do 1925	2,128,639	1,901,544	227,095	.....	193,380	68,998	†35,283	....
Skelly Oil Co. 1926	7,772,136	4,677,973	3,094,163	.....	1,073,594	105,888	*1,914,681	....
do 1925	7,468,088	5,186,723	2,281,365	.....	1,280,498	232,798	* 768,069	....
Texas Pacific C. & O. Co. 1926	2,593,752	1,655,155	938,597	1,131,679	.....	.....	††1,065,093	....
do 1925	1,722,252	1,233,074	489,178	640,223	.....	.....	†† 584,890	....

*Subject to Federal Taxes. †Loss. ‡Includes Federal Taxes. ††Subject to Reserves.

Beacon Oil Co.—President Richard B. Kahle has stated preferred stock will not be retired at this time. Company has sold $3,000,000 10-year 6% debenture bonds with stock warrants to White, Weld & Co. Proceeds are to be used to retire $625,000 purchase money notes and for their corporate purposes.

Magdalena Syndicate—Control bought by J. S. Cosden who has been elected to the board together with his associates W. W. Lanahan, Baltimore, and W. S. Thomas, Brumley Chamberlain & Co. The syndicate has approximately 60,000 acres in 11 leases in Colombia adjacent to the Barco concessions.

General Asphalt Co.—John L. Weeks, Luke, Banks & Weeks, New York investment bankers, elected to board of directors which was enlarged by one seat.

Pandem Oil Corp.—Net operating income of $169,705 reported for third quarter compared with $136,882 in the second quarter.

Mexican Petroleum Co.—First half year earnings after all charges amounted to $14,020,327, equivalent to $29.61 on each $100 share of common stock after dividends on preferred stock.

Shell Union Oil Corp.—Shell Oil Co. of California has organized Shell Oil Co. of Arizona under laws of California. Incorporating directors were G. Legh-Jones and John Lauder, president and vice president, respectively, of Shell of California, and D. Pysel.

Cumberland Pipe Line Co.—Annual meeting will be held Dec. 2 at Winchester, Ky. Books closed Nov. 2.

Producers & Refiners Corp.—Income of $1,398,350 after depreciation and interest but before depletion and federal taxes in first half of 1926.

Transactions In Oil Shares on New York Stock Exchange

1925 High	1925 Low	1926 High	1926 Low		Listed Capital	Par Value	Stocks	Div. Rate	Div. Last Paid	Transactions week ended Nov. 13 Sales	First	High	Low	Last	Ch'ge
.....	.....	32¼	24¼	(sh)	715 000	N.P.	Amerada Corp.	50cQ	Oct. 30, 26	6,500	28½	30	28½	29¾	+ ¾
48¾	48	74	39⅞	(sh)	200 000	N.P.	American Republics	.....	.....	1,200	40⅛	41	†39⅞	41	—3
41	32	59½	44¾	$	56 000,000	$25	Associated Oil	50cQ	Sept.25, 26	1,100	51	52	51	51½	+2
97½	95½	128¾	97		50,000,000	100	Atlantic Refining	.....	June 16, 24	2,800	103	104¼	102	102¾	+ ¼
173¾	113½	120	115⅜		20,000,000	100	do pfd	$1¾Q	Nov. 1, 26	500	116½	116½	115¾	115¾	+ ½
33½	18¾	33½	23¾		25,000,000	25	Barnsdall Corp. A	50cQ	Oct. 1, 26	9,300	26½	27⅝	26½	27	+ ½
30	16	29½	22½		8,713,275	25	do B	50cQ	Oct. 1, 26	900	24	25	24	25	+1¾
34¾	25⅞	38⅝	29¾	$	45,040,125	$25	California Petroleum	50cQ	Sept. 1, 26	5,100	31	31⅞	31	31¾	+ ¾
70	42½	94½	50		25,542,500	100	General Asphalt	.....	.....	45,000	77¼	80⅜	76	77⅜	+1⅜
109	86½	140⅝	94⅞		7,416,000	100	do pfd	$1¾Q	Sept. 1, 26	200	119⅞	120¾	119⅞	120¾	+3¼
85	59	72	50½		25,000,000	100	Houston Oil	.....	.....	800	54½	55½	54½	55	0
41¾	13½	34	19⅜	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Oct. 18, 26	24,900	28	29¼	27	28	+ ¼
14½	5½	13¾	7¾	$	3,204,590	$10	Indian Refining	.....	Dec. 15, 20	2,300	8½	8½	8	8	8⅛
12¾	6	12½	7½		4,545 860	10	do ctfs	.....	.....	1,000	8⅛	8¼	7¾	7¾	— ¼
110	77	104	90		2,296,400	100	do pfd	.....	Dec. 15, 21	100	97⅝	97⅝	97⅝	97⅝	+ ⅛
1½	¼	¾	¼		1,678,760	10	Kansas & Gulf	.....	.....	200	¼	¼	¼	¼	0
.....	.....	24½	19⅜	(sh)	4,000,000	N.P.	Lago Oil & Transport	.....	.....	16,800	21⅛	21⅜	21	21¼	— ⅛
23¾	13¾	19⅞	12	(sh)	1,131,216	N.P.	Louisiana Oil Refining	.....	.....	4,900	14⅝	14⅞	14½	14½	— ⅛
.....	.....	97	93½	$	4,000,000	$100	do pfd	$1½Q	Nov. 15, 26	.....	.....	.....	.....	.....	.....
35½	20¾	28⅞	16½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	3,200	17½	19¾	17½	19¾	+2¼
60½	32¾	63⅜	49¼	(sh)	1,895 823	N.P.	Marland Oil Co.	$1Q	Sept. 30, 26	34,600	53¾	54¾	53¼	53⅞	— ⅛
250	225	.....	.....	$	45,942,800	$100	Mexican Petroleum	$3Q	Oct. 20, 26	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	100	do pfd	$2Q	Oct. 20, 26	.....	.....	.....	.....	.....	.....
22½	29	13¾	6	(sh)	945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	2 100	8¾	9	8¾	8¾	+ ⅛
58	25¾	37	27½	(sh)	1 357 800	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 23	7 800	30⅛	31⅜	30	31	+1
94½	83	101½	90	$	6,718 000	$100	do pfd	$1¾Q	Sept. 1, 26	700	100½	*101½	100¼	101	+ ¾
5¾	5⅝	2½	⅞		25,415,540	10	Middle States	.....	July 1, 23	4,500	1⅛	1⅛	1	1	— ⅛
1½	1½	1⅜	½		4,384,680	....	do ctfs	.....	.....	200	⅞	⅞	⅞	⅞	+ ¼
78½	51¾	83½	1	(sh)	3,500,000	N.P.	Pacific Oil	.....	Jan. 20, 26	59,900	1⅜	1½	1⅜	1½	+ ⅛
88⅞	59½	76½	56⅛	$	48,307,400	$50	Pan American P. & T	$1.50Q	Oct. 20, 26	500	64	65	63⅝	65	0
84½	60⅛	78¾	56⅞		91,025,100	50	do B	$1.50Q	Oct. 20, 26	42,400	64¼	65¼	63½	63¾	— ⅞
49¾	37¼	46	30	(sh)	400,000	N.P.	Pan American Western B	50cQ	Oct. 30, 26	1,100	34	34	32⅞	32⅞	—1⅛
6¼	2¼	32	4¼	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	6,800	17⅞	17⅞	16	16	—2
60½	37	99⅜	51	$	2,935,200	$100	do pfd	.....	July 2, 23	300	79	79	77	77	—1
47⅜	36¼	52¾	40	(sh)	2,406,692	N.P.	Phillips Petroleum	75cQ	Oct. 1, 26	74,200	48¾	52	48½	51¼	+2⅜
3½	1¼	1⅞	½	$	29,622,925	$25	Pierce Oil Corp	.....	.....	2,300	½	½	½	½	— ⅛
40	20¾	27⅜	11½		15,000,000	100	do pfd	.....	Feb. 1, 22	.....	.....	.....	.....	.....	.....
8¼	4½	7	2½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	1,400	3	3	2¾	2¾	— ¼
32⅝	12½	20⅞	11	$	11,467,850	$50	Producers & Refiners	.....	Sept.15, 23	6,200	19½	20½	19	19¼	— ¼
47⅜	27	41¾	30¾		2,845,350	50	do pfd	.....	May 1, 25	600	39½	40	39	40	— ½
83¾	25⅛	31	25¼		75,959,250	25	Pure Oil Co	87½cQ	Sept. 1, 26	4,700	27	27⅜	x26⅛	26⅜	— ⅜
108½	103	112¾	106		13,000,000	100	do 8% pfd	$2Q	Oct. 1, 26	.....	.....	.....	.....	.....	.....
57¾	48¼	57⅜	47¾	(sh)	691,922	13.40	Royal Dutch, N. Y. shares	$1.739	Aug. 2, 26	1,700	48½	49⅝	48½	49⅝	+1⅛
49	39½	48⅝	40¾	(sh)	93,345	£2	Shell Transport & T	$1.21	July 24, 26	300	43⅜	44	43⅜	43½	+1⅛
28⅜	21⅝	30⅞	24	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Sept. 30, 26	31,900	30¼	*30⅞	30⅛	30½	+ ⅛
106½	99½	114	103	$	20,000,000	$100	do pfd	$1½Q	Nov. 15, 26	500	106¼	107⅛	106¼	107	+ ¾
23½	17¾	28⅝	15⅛		7,207 620	10	Simms Petroleum	50cS.A.	July 1, 26	12,600	18⅛	19	17¾	18½	+ ¼
24⅞	17	24⅞	16¾	(sh)	4,489,887	N.P.	Sinclair Consolidated	.....	May 31, 24	23,100	18⅛	18½	18	18	0
94⅛	78¾	99½	90	$	17 852,200	$100	do pfd	$2Q	Nov. 15, 26	200	95½	95½	95½	95½	0
32½	21¾	36⅞	26⅝		23,988,590	25	Skelly Oil Co	50cQ	Sept. 15, 26	32,500	31¾	33¾	31½	33½	+1¾
.....	.....	63¾	52⅝	(sh)	13,016,434	N.P.	S. O. California	50cQ	Sept. 15, 26	24,200	60⅝	61	59¾	59¾	— ⅞
47½	38¾	46¾	40¼		515,109,675	25	S. O. New Jersey	25cQ	Sept. 15, 26	51,600	43	43¼	41½	42	—1
119	116¾	119⅜	115¾		199,972,900	100	do pfd	$1¾Q	Sept. 15, 26	10,500	116¾	116¾	115¾	116⅜	— ⅜
48⅞	38⅛	41¾	30⅛	(sh)	1,103,931	N.P.	Sun Oil	25cQ	Sept. 15, 26	2,100	33	33⅜	32¼	33⅜	— ⅛
6⅛	2	5	1	(sh)	1,121,368	N.P.	Superior Oil Corp	.....	Dec. 20, 20	26,700	3½	4⅜	3½	4¼	+ ⅜
55	42¾	57¼	48	$	164,450,000	$25	The Texas Co	75cQ	Sept. 30, 26	35,300	54⅝	55⅝	54¼	55	+ ½
23⅜	10⅞	19½	12		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	8,400	15	15¼	14⅜	14⅞	+ ⅛
36⅞	30¼	39¼	27¼	(sh)	2,137,570	N.P.	Tide Water Oil Co	37½c	Sept. 30, 26	700	28	28¾	27⅝	28¾	+1⅛
101	99	103	87¼	$	20,672,900	$100	do 5% pfd	$1.25Q	Nov. 15, 26	1,000	87½	90¼	87½	90¼	+2⅜
5⅞	3½	5½	3	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	11,000	4⅛	4¼	4	4⅛	0
48¾	33	58¾	37¼	$	40,480,800	$25	Union Oil of California	50cQ	Nov. 10, 26	18,100	54⅞	55½	53¾	53⅞	—1
134	96¼	120	80		24,423,300	100	Union Tank Car Co	$1¼Q	Sept. 1, 26	700	115¼	115¼	x113	113½	— ¾
117⅛	113¼	118	113¼		12,000,000	100	do pfd	$1¾Q	Sept. 1, 26	300	116	116⅛	116	116⅛	+ ⅛
31¾	25½	29¼	25⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Oct. 20, 26	2,500	26⅛	26½	25⅝	26	— ¼

*New High †New Low xEx-Dividend Total Sales 673,000

Pittsburgh Stock Exchange

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Nov. 12 Sales	First	High	Low	Last	Ch'ge
.....	.....	8½	6¾	N.P.	Andes Petroleum	.....	.....	.....	.....	.....	.....
8¼	5¼	8½	5¾	$10	Arkansas Nat. Gas	1,775	8	8¼	8	8⅛	0
.....	.....	98	79¾	100	Columbia Gas (w.i.)	.....	.....	.....	.....	.....	.....
.....	.....	97½	95	$100	Col. Gas & El.pfd.w.i.	.....	.....	.....	.....	.....	.....
18	14½	17	12½	$10	Devonian Oil	548	14½	16	14½	16	+2
112⅜	105⅜	116½	112	$100	Duquesne Lt. 7s pfd	10	116½	*116½	116½	116½	+ ¾
.....	.....	10	5⅛	N.P.	Houston Gulf Gas	2,150	5½	5⅝	†5⅛	5⅜	0
.....	.....	46	39	25	Lone Star Gas Corp	2,297	44¾	45⅛	44	44	— ¾
57¼	31	45	33½	25	Ohio Fuel Corp	25	44¼	44¼	44¼	44¼	— ¼
.....	.....	45	42	....	do ctfs. of deposit	1,698	44½	44¾	44¼	44¾	+ ¼
.....	.....	5½	5	....	Ohio Oil & Gas	150	5½	5½	5½	5½	0
34	26	34	28	25	Oklahoma Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	20¼	19¼	....	do ctfs. of deposit	2,726	20	20	20	20	0
8¾	5	5⅜	3½	5	Pittsburgh O. & G	700	3¼	3¼	3¼	3¼	0
9⅜	6	10	7½	10	Salt Creek Cons	10	7½	7½	7½	7½	— ⅛
18¾	8½	27	8	10	Tidal Osage	1,370	23	24	22⅜	24	— ¼
.....	.....	42½	40	N.P.	Waverly Oil Wks. "A"	130	41	41	40¼	40¼	— ½

Pittsburgh Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Nov. 12 Sales	First	High	Low	Last	Ch'ge
2½	.60	3⅜	2½	$ 5	Colombia Synd	.....	.....	.....	.....	.....	.....
.60	.15	.15	.06	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9	5½	22	22	10	Forest Oil	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	....	Guffey-Gillespie Oil	.....	.....	.....	.....	.....	.....
92⅜	64	91½	85	25	Gulf Oil Corp	.....	.....	.....	.....	.....	.....
.....	.....	79	79	100	Houston Gulf pfd	.....	.....	.....	.....	.....	.....
12½	3¼	12	7½	N.P.	Leonard Oil & Dvlp	.....	.....	.....	.....	.....	.....
.....	.....	15⅜	15⅜	N.P.	Mountain & Gulf	.....	.....	.....	.....	.....	.....
.....	.....	30¼	29	....	Oklahoma Gas	.....	.....	.....	.....	.....	.....
.47	.20	.80	.15	10	Omar O. & G	9,170	.70	.73	.65	.72	—.07
.....	.....	2	1¾	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
27½	25	33½	20	10	Plymouth Oil	450	26¾	27	26¾	27	0
7	3	5½	3	5	States Oil	.....	.....	.....	.....	.....	.....
4	1⅜	3½	2	$ 1	Texon Oil & Land	585	2⅝	2⅞	2⅝	2⅝	— ⅛
.....	9	25¾	8	10	TidalOsage(non-voting)	200	22	22	22	22	—2⅛

*New High †New Low xEx Dividend ‡Ex-Rights

NEW YORK CURB BONDS

Week Ending Nov. 12

	High	Low	Last	Ch'ge
Cities Serv. 6s '66	96	95¼	95⅜	+ ⅜
Cities Serv. 7s "D" '66	121⅞	121½	121½	+ ½
Cities Serv. 8s "E" '66	132	130⅛	130⅛	— ⅜
Galena S. O. 7s '30	90	87⅛	87⅞	+2⅜
General Pet. 6s '28	101⅝	101¼	101½	0
Gulf Oil 5s '37	100⅝	100¼	100¼	0
Gulf Oil 5½s '28	100¾	100¾	100¾	0
Indepen. Oil 6½s '31	98½	98	98¼	+ ¼
Pan Amer. Pet. 6s '40	99½	99⅛	99½	0
Pure Oil 6½s '33	103½	103¼	103½	0
S O N Y 6½s '33	105¾	105⅜	105⅝	0
Sun Oil 5½s '39	100	99⅝	99⅝	— ⅜
Tidal Osage 7s '31	103	103	103	0
Trans. Cont. Oil 7s '30	96¾	96¾	96¾	+ ¼
Valvoline 7s '37	104	104	104	—1

NEW YORK BONDS

Week Ending Nov. 12

mer. Rep. Deb. 6s	99½	99⅛	99¼	— ¼
Associated Oil gold 6s	103	102¾	103	0
Atl. Gulf & W I SS 5s	70	69	69	— ¾
Atlantic Refg. deb. 5s	100½	100⅜	100½	— ⅜
Barnsdall Corp. sf 6s	98¾	97¾	98⅝	+1⅛
Cal. Petrol. sf 6½s	103⅞	103¾	103¾	— ⅛
Empire Gas & Fuel 7½s	104½	104	104¼	+ ¼
Empire Gas & Fuel 6½s	98⅝	98½	98⅝	+ ⅛
Gen. Asphalt 6s	107¾	106½	107	— ¾
Gen. Petroleum 5s	101	100¾	101	+ ¼
Humble Oil & Refg. 5½s	102⅛	101¾	102	0
Mid-Cont. Pet. 6½s	104¾	104⅜	104⅜	— ¼
Pan-Amer. P & T 7s	105½	105⅛	105½	+ ⅜
Pan-Amer. P & T 6s	106	105¾	105½	— ¼
Pierce Oil deb 6s	101½	101½	101½	+1½
Prod. & Refnrs. 8s	111	111	111	0
Sinclair Con. Oil Col. 7s	97½	96⅞	97⅛	— ⅛
Sinclair Con. Oil Con. 6½s	92¼	91⅞	92¼	0
Sinclair Con. Oil 6s	100¼	100	100	0
Sinclair Crude Oil 6s	101	100¾	101	+ ⅛
Sinclair Pipe Line sf 5s	92⅞	92½	92½	0
Superior Oil 7s	100	100	100	+1
Union Oil of Cal. 6s-A	107½	106¾	106¾	— ½
Union Oil of Cal. 5s-B	101⅜	101⅜	101⅜	0
Union Oil of Cal. 5s-C	98½	98	98¼	+ ⅛

Standard Oil Stock Traded in New York

1925 High	1925 Low	1926 High	1926 Low		Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Nov. 12 Sales	First	High	Low	Last	Ch'ge
26⅝	17¼	21	16¾	£	4,000,000	£1	Anglo American	60¾cS.A.	May 27, 26	6,000	19¼	*21	19¼	20½	+1¼
.....	.....	20¼	16½		.....	£1	do ctfs non-votg	.....	.....	1,600	18¾	*20½	18¾	20	+1½
4¼	1⅜	2¼	1⅜	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	250	1⅜	1⅜	1⅜	1⅜	+ ⅜
12⅜	3	5	3⅛	$	10,000,000	$10	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
240	205	301	226		1,000,000	100	Borne Scrymser	$4S.A.	Oct. 15, 26	.....	.....	.....	.....	.....	.....
.....	.....	67	65		.....	....	do new	.....	.....	50	66½	66½	66½	66½	+1½
72	58½	59½	42		10,000,000	50	Buckeye Pipe Line	$1Q	Sept. 15, 26	4,000	45	45	42¾	42¾	+1¾
74	48½	76	65		3,000,000	25	Chesebrough Mfg	75cQ	Sept. 30, 26	600	73	76	73	76	+3
115	110	.....	.....		1,000,000	100	do pfd	$1¾Q	Sept. 30, 26	.....	.....	.....	.....	.....	.....
31½	21¼	25⅞	17¾		34,914,280	10	Continental Oil	25cQ	Sept. 15, 26	12,700	18⅞	19⅜	18½	19¼	+ ⅜
17⅜	10	17	13½		1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	400	15½	15½	15⅜	15⅜	+ ⅜
156	132	137	102		3,000,000	100	Cumberland Pipe Line	$3Q	Sept. 15, 26	550	105	109	105	109	+5½
96	61	63¾	43		5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 26	.....	.....	.....	.....	.....	.....
68½	23½	32½	9⅜		16,000,000	100	Galena Signal Oil	.....	June 30, 25	210	12	12	11½	11½	— ½
105	88	94½	35		4,000,000	100	do new pfd	.....	June 30, 26	230	45	46	45	45	+1
114	95	97½	45¾		2,000,000	100	do old pfd	.....	June 30, 26	10	45¼	45¼	45¼	45¼	— ¼
95	42¼	68¼	52		72,916,650	25	Humble Oil & Refining	30cQ	Oct. 1, 26	9,800	57½	58	55	58	+ ½
154½	127	144½	131		20,000,000	100	Illinois Pipe Line	$6S.A.	June 30, 26	150	135½	135¾	135½	135½	+ ½
39¾	27¼	39¾	31½	(sh)	6,491,852	N.P.	Imperial of Canada	25cQ	Sept. 1, 26	21,200	37¾	*39¾	37½	37½	+ ⅛
84	57⅛	70	54¼	$	5,000,000	50	Indiana Pipe Line	$1Q	Nov. 15, 26	190	54¼	58	†54¼	58	+4¼
35⅜	22⅛	35¼	28¾	(sh)	7,118,138	N.P.	International Petroleum	25c	Nov. 15, 26	19,800	31	32⅜	31	31¾	+ ¼
25⅝	16½	20⅝	12½	$	6,362,500	$12½	National Transit	25cQ	Sept. 15, 26	1,700	15⅛	15⅜	12½	12½	0
79	49¼	51½	27⅛		5,000,000	100	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
88	67½	80½	64		4,000,000	100	Northern Pipe Line	$8S.A.	July 1, 26	150	64	70	64	70	+6
75¼	60¼	67⅜	55¾		60,000,000	25	Ohio Oil Co	50cQ	Sept. 15, 26	500	58½	59	58½	58½	+ ½
44½	19	24¾	15		10,000,000	25	Penn Mex Fuel	.....	May 21, 25	200	20½	20½	20½	20½	+ ½
65½	45⅞	60¼	48		60,000,000	25	Prairie Oil & Gas	50cQ	Aug. 31, 26	9,300	50	50¼	49⅜	49⅞	0
129¾	106	127½	122¼		81,000,000	100	Prairie Pipe Line	$2Q	Oct. 30, 26	600	124¼	124½	124	124½	+ ¼
254	200	220	184½		4,000,000	100	Solar Refining Co	$5S.A.	June 19, 26	10	198	198	198	198	+2
103	63	74½	24		10,000,000	100	Southern Pipe Line Co	.....	Mar. 1, 26	200	24	24	24	24	0
47½	45	50	34½		20,000,000	25	South Penn Oil Co	37½cQ	Sept. 30, 26	2,400	36	36½	36	36⅜	— ⅛
84	50	56½	49		3,500,000	100	South West Pa. Pipe Line	$1Q	Oct. 1, 26	.....	.....	.....	.....	.....	.....
70¾	59½	70½	60½	$	223,756,258	$25	S. O. Indiana	62½cQ	Sept. 15, 26	36,100	64⅝	65½	64½	65½	+1
46	30⅛	36½	16½		8,000,000	25	S. O. Kansas	.....	June 16, 24	1,000	19	19¼	18⅞	19	0
137	114¾	134⅜	108		16,864,434	25	S. O. Kentucky	$1Q	Sept. 30, 26	400	119¼	119⅜	119	119	— ¾
.....	.....	51⅛	42		4,518,000	25	S. O. Nebraska	63cQ	Sept. 20, 26	2,600	46¾	48	46½	47½	+1⅜
48⅝	†40¾	47¼	30⅜		358,102,000	25	S. O. New York	40cQ	Sept. 15, 26	42,200	32¼	32½	32⅛	32¼	+ ⅛
369	338	362	288		14,000,000	100	S. O. Ohio	$2½Q	Oct. 1, 26	30	291½	300	299½	300	+1
123	116	122	117		7,000,000	100	do pfd	$1¾Q	Sept. 1, 26	10	118½	118½	118½	118½	+ ½
27	12	23	15¼		1,722,931	25	Swan-Finch Co	.....	Nov. 1, 19	50	16½	16½	16½	16½	+ ½
109½	80⅛	112	90¼		61,919,950	25	Vacuum Oil Co	50cQ	Sept. 20, 26	6,200	98	98	95¼	96⅞	+1⅝

Cleveland Stock Market

Nov. 13

	Par	Bid	Asked	Last Sale
Canfield Oil Co	$100	.....	.....	110
do pfd	100	.....	.....	95
Fred G. Clark Co	10	3½	4	3¾
National Refining Co	25	x39	.....	39
do pfd	100	.....	.....	132
Paragon Refining Co	25	7¼	7¾	7¼
do pfd	100	65	.....	80

xEx-dividend

Oil Dividends

	Amt.	Payable	Stock of Record
California Pet. q	50c	Dec. 1	Dec. 15
Cumberland P. L. q	$3	Dec. 15	Nov. 30
Northern P. L. s. a	$3	Jan. 1	Dec. 10
do extra	$1	Jan. 1	Dec. 10
Pennok Oil q	50c	Dec. 23	Dec. 15
Simms Pet. s. a	50c	Jan. 3	Dec. 15
S. O. New York q	40c	Dec. 15	Nov. 19
S. O. Nebraska q	62c	Dec. 20	Nov. 24
do extra	50c	Dec. 20	Nov. 24
S. O. Ohio q	$2.50	Jan. 1	Nov. 26
Tidal Osage q	1¾%	Dec. 1	Nov. 22

Wilcox Oil & Gas Co.—Net income in the first nine months of 1926 after expenses, depreciation and depletion amounted to $1,487,225 compared with $850,770 in the first three quarters of 1925. Net earnings this year were equivalent to $3.83 a share and last year to $2.19 a share.

Middle States Oil Corp.—Reorganization committee is being formed by Robert W. Jackson, 170 Broadway, New York. Mr. Jackson has asked stockholders for their proxies.

New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions week ended Nov. 12 Sales	First	High	Low	Last	Ch'ge
11½	2½	14½	4	$ 5	Amer. Maracaibo	32,300	7	7⅜	6¼	7	+ ⅛
8⅜	5	8⅜	5¾	$10	Arkansas Nat. Gas	300	8	8	8	8	— ⅛
.....	.....	19⅜	14⅜	N.P.	Beacon Oil	1,300	16¼	16¼	16	16⅛	— ⅜
47½	38	.....	.....	$25	British-American	200	65	65	65	65	+1
10¼	2¾	22⅞	9¼	25c	Carib. Syndicate	37,500	18⅞	21	18½	20½	+1¾
43	35	48⅞	37½	$20	Cities Service	13,700	48⅝	*48⅞	48½	48⅞	+ ⅛
85⅜	80¼	92¼	82¾	100	do pfd	2,900	91¾	*92¼	91¾	92¼	+ ½
8	7¼	8¼	7⅜	10	do pfd. B	2,300	8¼	8¼	8¼	8¼	0
21⅜	17½	24¼	19	10	do bankers' sh	200	24¼	24¼	24¼	24¼	0
2¾	.60	3½	1¾	N.P.	Colombia Syndicate	32,400	2⅛	2⅝	2⅛	2¼	— ¼
15	8¼	16	10	N.P.	Creole Syndicate	143,400	13⅜	13½	13	13¼	+ ⅜
12¾	5	7⅜	1⅜	N.P.	Crown Central	5,300	1¾	2¼	1¾	2	+ ⅜
7	2	4	1⅛	N.P.	Derby Oil & Ref	100	2¾	2¾	2¾	2¾	0
27	[10½	19	13	N.P.	do pfd	100	14	14	14	14	—1
.....	.....	2¼	.60	....	Euclid Oil	14,700	1⅛	1⅛	1	1⅛	0
6	1⅜	7½	2½	N.P.	Gibson Oil	9,300	3⅛	3¼	3	3⅛	— ⅛
3¾	1⅝	2	.63	N.P.	Gilliland v.t.c	200	90	90	90	90	0
98¼	63½	95	82	$25	Gulf Oil Corp	800	89½	90½	89½	90	0
5⅞	2¼	4	1	N.P.	Kirby Petroleum	9,400	2⅛	2¼	1⅝	1⅝	+ ¾
18	6	12¼	5¾	N.P.	Leonard Oil & Dev.	*3,800	.....	7⅝	7¼	7¼	— ⅜
25⅞	18	25¾	20	N.P.	Lion Oil Refining	6,200	24¼	24¾	24	24¼	0
.....	.....	46	31½	$25	Lone Star Gas	.....	.....	.....	.....	.....	.....
4¼	1¾	3⅜	2	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
5¾	.56	5½	1⅞	$10	Mexican-Panuco	17,900	2⅝	2¾	† 1⅞	2¼	— ⅜
2	1	1¾	1¼	1	Mountain & Gulf	.....	.....	.....	.....	.....	.....
26¼	18⅜	26	22½	10	Mountain Prod	5,200	24¼	24¾	24⅜	24⅝	+ ¼
6¾	3⅝	6¾	5⅛	5	New Bradford	1,000	5¼	5½	5⅜	5½	+ ¼
24¾	16¼	11¾	2	10	New England Fuel	.....	.....	.....	.....	.....	.....
19⅜	6¼	17	9⅛	1	New Mex. & Ariz	400	11	11	10½	10⅝	+ ½
12½	8¼	17	8	25	New York Oil	200	9½	10	9½	10	+ ⅛
37	14	36	34¼	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
.....	.....	9⅞	6	....	Pandem	7,500	8	8⅞	8	8⅜	+ ¼
2½	.90	2¾	.20	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
28¼	16	22¾	12	$10	Pennok Oil	300	13½	14	13½	14	— ¾
44½	16	38	14⅛	25	Red Bank Oil	100	23	23	23	23	—1
33½	19	28¾	12	N.P.	Reiter-Foster	19,600	15¼	16¾	14⅝	16¾	+1⅜
.....	.....	27½	22	$25	Richfield Oil w.i	700	23	23	22	22⅛	+ ⅛
9½	3½	7½	4½	N.P.	Ryan Consolidated	.....	.....	.....	.....	.....	.....
9¾	6⅛	10	7½	$10	Salt Creek Cons	2,400	7¾	8⅛	8⅛	8⅛	+ ½
35	24	36	26⅞	10	Salt Creek Prod	2,000	29¼	30	29	30	+ ⅞
3⅞	1	4	1⅝	5	Savoy Oil	.....	.....	.....	.....	.....	.....
13¾	9	27	7⅜	10	Tidal Osage	3,100	24	24½	22	24¼	+ ½
10⅞	8	25¾	8½	10	do non-voting	9,800	23	23	20¼	22½	+ ¾
.....	.....	27	20⅜	N.P.	Tide Water Assoc	8,600	23	23¾	23	23⅜	+ ⅛
.....	.....	99¼	97½	100	do pfd	2,300	97½	97⅝	97½	97½	0
4⅞	1¾	8	4¼	5	Venezuelan Pet	35,400	7	7½	6⅝	7¼	+ ½
.....	.....	29¾	23½	N.P.	Warner-Quinlan	900	25	25¼	25	25¼	+ ¼
31¼	22⅝	36⅜	22	N.P.	Wilcox O. & G. new	1,600	25¼	27½	25¼	27½	+1¾
7	3⅞	9½	4⅜	$ 1	Woodley Petroleum	700	7⅞	8⅛	8⅞	8⅞	+ ⅛

*New High †New Low xEx-Dividend.

Conewango Refining Co. Markets 6% Bonds

CLEVELAND, Nov. 13.—An offering of $500,000 of Conewango Refining Co. first mortgage 6 per cent sinking fund gold bonds due Sept. 1, 1941, has been made by Phillip H. Collins Co., Cleveland. The price was 95½ and interest, to yield 6.62 per cent.

The bonds are convertible at the option of the holder into Conewango class A stock, par $100 a share, preferred as to assets but unlimited as to dividends, at 10 shares for each $1,000 bond. They are callable at 105 and interest on any interest date after 30 days' notice. The bonds are secured by a first mortgage on the Conewango's two refineries at Warren, Pa., which cover 53 acres.

The purpose of the issue was to liquidate indebtedness, add to and improve properties, and provide additional working capital, Fred G. Clark, president, wrote bankers.

The Conewango, Mr. Clark said, is the largest manufacturer of bright stocks from Pennsylvania crude oil, producing about 350,000 gallons of "H. M." and "L. M." a month. Average yearly net earnings from 1906 to June 30, 1926, were $145,148 and from 1916 to June 30, 1926, $182,195. Property of the company, Mr. Clark wrote, has been a net valuation of $1,138,217 and net quick assets, after giving effect to this financing amount to $338,723. H. S. Bell, petroleum engineer, estimates net earnings in the current fiscal year ending June 30, 1927, should be $240,000.

Swan-Finch Oil Corp.—Quarterly dividends on the preferred stock totaling 8¾ per cent have been declared payable Nov. 22 to stock of Oct. 30 record. This payment will clear all arrears to Sept. 1, 1926.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

22182.—**Paraffin,** Hamburg, Germany, agency.

22469.—**Gasoline,** Asuncion, Paraguay, purchase.

22581.—**Oils and greases,** Melbourne, Australia, agency.

22612.—**Petroleum coke,** Hamburg, Germany, purchase.

22629.—**Lubricating oils,** Puerto Varas. Chile. agency.

22821.—**Lubricating oils and paraffin wax,** Colombia, agency.

22865.—**Asphalt,** Dresden, Germany, purchase or agency.

22866.—**Lubricating oils,** Montevideo, Uruguay, agency.

22867.—**Asphalt,** Antwerp, Belgium, purchase.

THE OIL INDUSTRY EXCHANGE

Market Section

Positions Wanted

POSITION WANTED by man thirty four years old, married, with sixteen years' experience with oil companies operating in the United States and Mexico as **SECRETARY, PURCHASING AGENT AND EXECUTIVE** work. Willing to take anything where there is opportunity to advance. References Box 725.

Situations Open

TWO SALESMEN

Wanted by large refiner to cover jobbing trade out of Philadelphia. Salary and good opportunity for advancement.
Box 729

OIL SALESMAN for Automobile or Industrial Lubrication: We seek a man of enough energy and ambition to fit himself for subsequent promotion to supervisor or district manager. Write in confidence full details of education, experience, age, salary required. Appointment only by mail. Panhard Oil Corporation, 122 Greenwich St., New York City.

RESEARCH CHEMIST WANTED

by prominent oil company. Research Chemist who has had experience and up-to-date knowledge in the manufacture of Core Oils.
Box 730

MANAGER WANTED

A marketer and jobber of petroleum products desires to open Tulsa office and needs experienced manager well acquainted with refiners in Oklahoma and Texas. Give full particulars. State experience, etc. Applications will be treated strictly confidential.
Address Box 721

Miscellaneous

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All advertisements carried on this page are payable in advance.

Advertisers having box numbers should be addressed in care of National Petroleum News, 817 Huron road, Cleveland, Ohio, unless otherwise specified.

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20 TONS POWDERED GRAPHITE FOR SALE

2c per pound. Excellent for Manufacture of graphite greases.
Acme Oil Corp., 189 N. Clark St., Chicago, Ill.

NEW YORK WATERFRONT PROPERTY FOR SALE for the storage of gasoline and all other petroleum products. 1000 feet from New York City line; one-half cent freight from New York Harbor Terminals.
Address Westchester Terminal Company, Inc. 707 S. Columbus Ave., Mount Vernon, N. Y.

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1246 West 70th Street
Cleveland, Ohio

GLYCERINE SUBSTITUTE FOR SALE

for anti freeze solutions, manufactured under U. S. Patents. Has lower freezing point than glycerine at half cost.
Acme Oil Corp., 189 N. Clark St.
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2 125 H.P. Gas Engines

2 100-H.P. Gas Engines.

Direct connected to D. C. Generators, complete with Switch Boards, Starter Tanks and Pump.

All in good condition.
Can be seen in operation.

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